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INDUSTRY | E-COMMERCE | WEB APPLICATIONS | THE BUYER'S SOURCE FOR BUSINESS TECHNOLOGY
NETWORKING | SYSTEMS | TECH CAREERS | MOBILE COMPUTING | HOME ENTERTAINMENT

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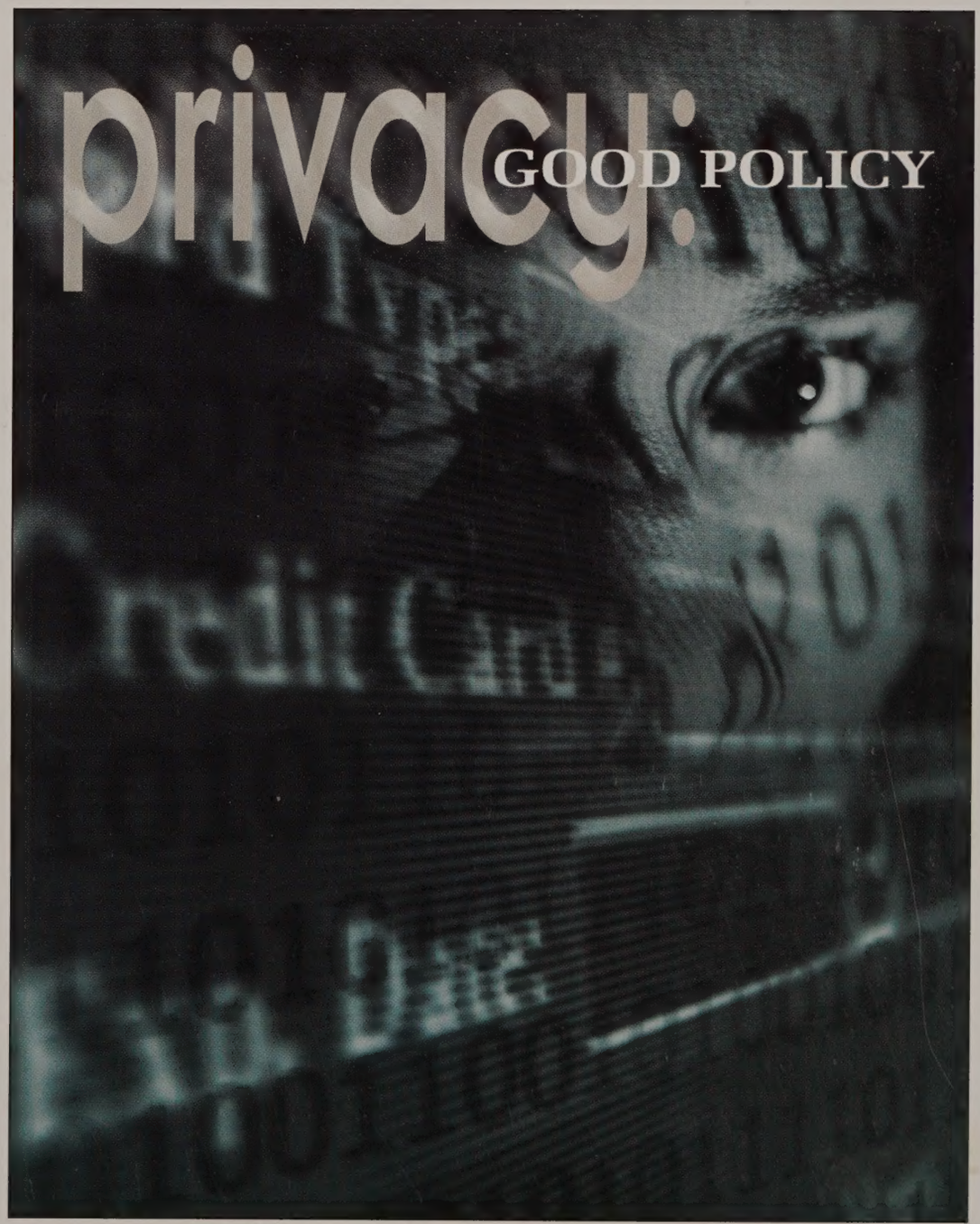

E-business

Privacy on the Web is always the best policy when it's "my privacy" or "your privacy," but what if people come after you with disparaging remarks — when does "their privacy" take priority?

Infrastructure

Mixing operating systems on a network doesn't have to be an alphabet soup of protocol acronyms, not if you build the network wisely — here are some tips on how to put a Mac on your NT network

Human Resources

HR is no longer just a minor function of some administrative assistant, it's a strategic part of your business — here are some strategies you can employ to make it work effectively

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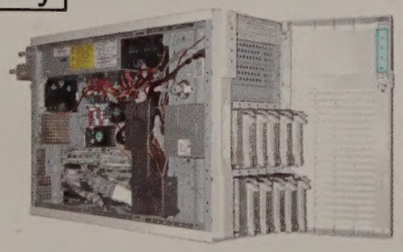

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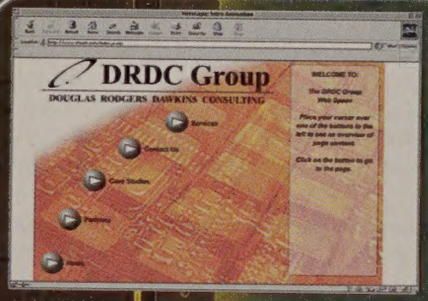

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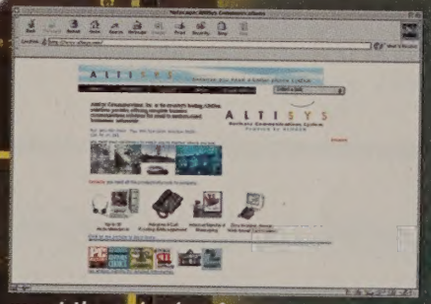
Doug Dawkins, President of DRDC Group, Artisoft System Provider, **www.DRDCgroup.com**



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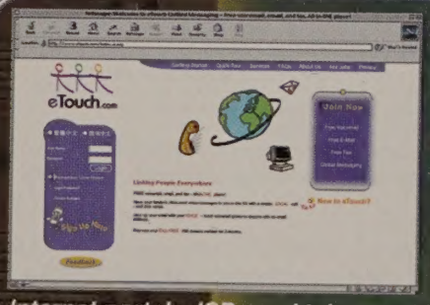

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- 17" (16"vis) NEC FE700 Flat Trinitron Monitor
- Altec Lansing ACS33 Speakers w/Subwoofer
- In-Win S500 Medium Tower ATX Case
- Microsoft Internet Keyboard & IntelliMouse
- Windows Millennium Edition

$999

Is this system for you?
The price/performance of this unit is great - excellent both as a business workstation or a basic home system with both gaming and business apps in mind. If you want faster video performance, this board does include an AGP slot. Could you get by with a Celeron CPU? Maybe, but dropping 25% in performance for a savings of only 10% is not recommended.

Popular upgrades:
Iomega ZIP 100MB or 250MB [+$50/+$100]
Creative 8x4x32 CDRW [+$120]

BASIC HOME SYSTEM

- ASUS CUSL2 Intel 815 w/Ultra-100
- Intel Pentium III 866MHz EB CPU
- 128MB PC133 SDRAM DIMM
- IBM 30GB 7200rpm ATA/100
- Matrox G450 16MB SDR Dual Head Video
- Iomega ZIP 250MB Drive
- Toshiba 48X IDE CD-ROM Drive
- Netgear FA311TX 10/100B-T
- Teac 1.44MB Floppy Drive
- Creative Labs SoundBlaster Live!
- 19" (18"vis) KDS AV-195TF Sony FD Trinitron Monitor
- Cambridge Soundworks FPS1000 Speakers
- In-Win S500 Medium Tower ATX Case
- Microsoft Internet Keyboard & IntelliMouse
- Windows Millennium Edition

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Is this system for you?
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Popular upgrades:
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- Netgear FA311TX 10/100B-T
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- 21" (20"vis) NEC/Mitsubishi FE1250 DiamondTron
- Cambridge Soundworks DTT2200 Speakers
- In-Win S500 Medium Tower ATX Case
- Microsoft Internet Keyboard & IntelliMouse
- Windows 2000 Professional

Is this system for you?
This is a no-compromise system that shines for anything from gaming to photo editing and speech recognition - or just plain internet surfing. High-end, yes. Overkill? No. Eventually you'll find an application that brings this one to its knees as well - the rule is to get the fastest you can afford. It will be obsolete soon enough!

Popular upgrades:
Creative Labs Soundblaster Live! Platinum 5.1 [+$100]
Sony G500 21" .24dp FD Trinitron Monitor [+$250]

These system configurations are just samples. Go online and price out YOUR configuration!

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- Teac 1.44MB Floppy Drive
- SoundBlaster Live!
- 17" (16"vis) NEC FE700 Flat Trinitron Monitor
- Altec Lansing ACS33 Speakers w/Subwoofer
- In-Win S500 Medium Tower ATX Case
- Microsoft Internet Keyboard & IntelliMouse
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Is this system for you?
At this CPU speed AMD offers the best value - no longer THAT far ahead of Intel, but still the better value. Check out the popular upgrades below, or go customize on our website. The configuration as it stands is perfect for anything from light gaming to photo editing with an application like Photoshop.

Popular upgrades:
Iomega ZIP 100MB or 250MB [+$50/+$100]
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- Iomega ZIP 250MB Drive
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Creative Labs Soundblaster Live! Platinum [+$100]
Sony G500 21" .24dp FD Trinitron Monitor [+$250]

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- In-Win Q500 Full Tower ATX Case
- Microsoft Internet Keyboard & IntelliMouse
- Microsoft Windows 2000 Professional

Is this system for you?
The best performance you can get from a standard system these days. Everything is top-of-the-line, and a great investment for a business workstation since your performance probably depends on your computer as much as yourself. We generally prefer ASUS or Intel motherboards, but their new dual CPU boards (ASUS CUR-DLS and Intel STL2) lack AGP slot. Add a 3Dlabs GVX1, GVX210 or GVX420 for engineering graphics apps.

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- DUAL Intel Pentium® III 1GHz CPUs
- 2GB PC133 SDRAM DIMM
- 4 x 18GB Seagate Cheetah X15 10K rpm
- ATI AGP Video Card
- Netgear FA311TX 10/100B-T
- Toshiba 48X IDE CD-ROM Drive
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- **TECHNOLOGY**: managed accounts receive two levels of powerful control panels
- **PRODUCT LINE**: flexible hardware packages, operating systems and management options
- **ADDITIONAL SERVICES**: clustering, backup and security solutions
- **EXPERIENCE**: a hosting industry leader since 1996
- **VARIETY**: managed and unmanaged packages available

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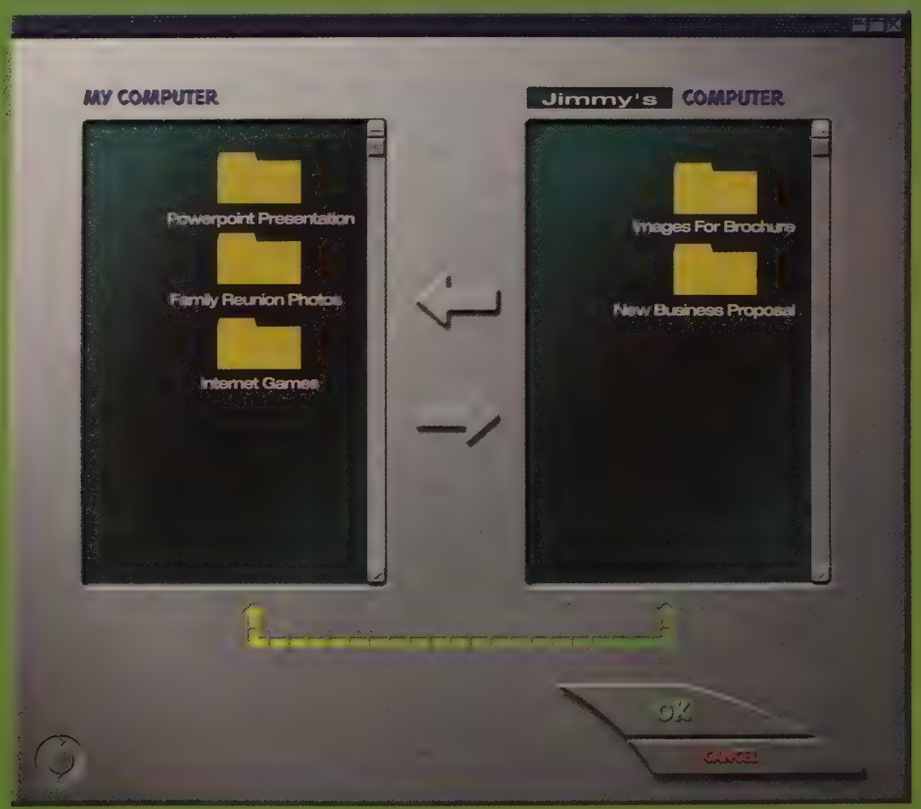

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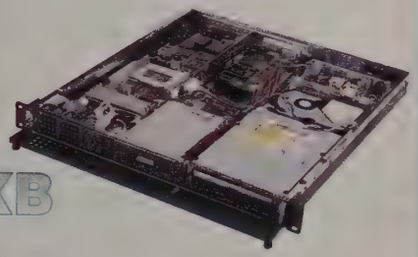
  -RK-900: 85~135VAC, 180~265VAC, DC/+12V, +24V, -48V



RK-116XB

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- System boards: M/B version, ATX with 1-slot PCI riser card for expansion
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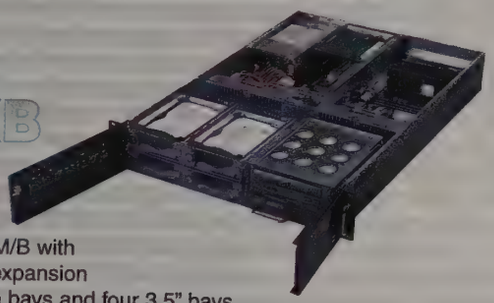
- Two ball-bearing fans (3 for B/P version)
- Removable and washable air filter



RK-227XB

- 2U Extended Rackmount System
- System boards: 12" x 13" extended ATX M/B with 3-slot PCI riser card for expansion
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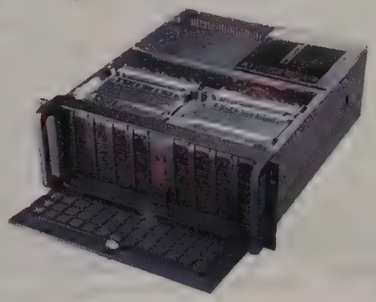
- Three ball-bearing fans
- Removable and washable air filter



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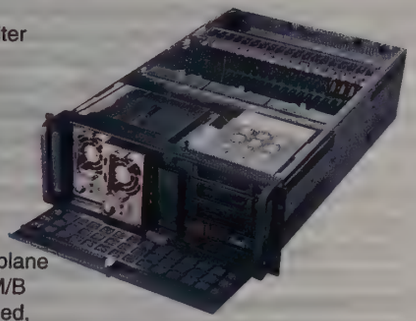
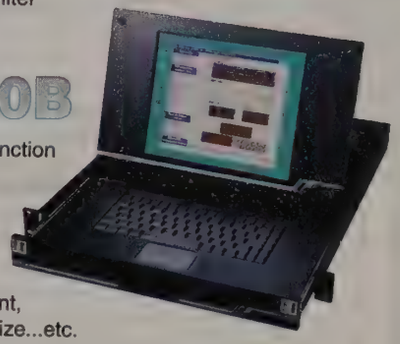


RK-417B

- 4U Extended Rackmount System
- SBC with 20-slot PCI/ISA backplane
- System boards:12" x 13" ATX M/B
  Three 5.25" and one 3.5" exposed,
  two 3.5" internal HDD optional for ATX version,
  HRP space can be converted to four 5.25" exposed bays
- Three hot-swap ball-bearing fans
- Two CPU and one alarm reset buttons, power on/off switch



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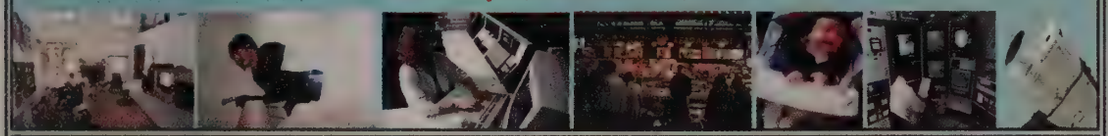

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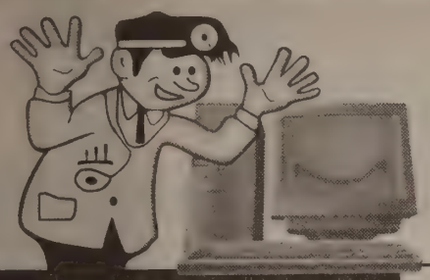

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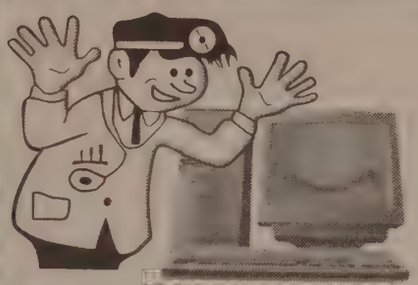

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Washington Watch

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bers have to generate levels of support," says Phil Bond, ITIC legislative affairs director, senior vice president and treasurer. He stresses that the council's scorecard is a "guide — pure and simple — and not a competitive analysis that measures how much effort each member (of Congress) gave to each individual issue. It doesn't measure leadership issues."

Actually, in another "members only" section of its Web site (www.itic.org), there is a "deeper analysis" of each lawmaker's voting record, but Bond refuses to give Washington Watch, or any other nonmember, access to it.

In the House, during the second session of the 106th, the most active pro-tech member of the California congressional delegation was Matt Martinez, R-Alhambra, with 10 "yeas." Wally Herger, R-Chico; Chris Cox, R-Newport Beach; Doug Ose, R-Woodland; John Doolittle, R-Roseville; Ed Royce, R-Fullerton; Cal Dooley, D-Hanford; Ken Calvert, R-Riverside; Mary Bono, R-Palm Springs; Howard "Buck" McKeon, R-Santa Clarita; and David Dreier, R-Covina; all voted with tech on nine issues. There is a cluster of representatives with eight pro-tech votes, including most of the Silicon Valley lawmakers.

And the naysayers? According to the scorecard, Pete Stark, D-Fremont, had the worst voting record among California lawmakers, opposing the industry on seven votes in the second session and voting nay six times in the first session. Right behind him was Barbara Lee, D-Oakland, voting against tech on six issues in the second session and five times in the first session. Another negative standout: Lucille Roybal-Allard, D-Los Angeles.

ITIC's Bond says high technology suffered somewhat in the November election. The deepest wound was the loss of Sen. Scott Abraham, a Republican member of the Commerce, Science and Transportation Committee and the Judiciary Committee. "He threw himself into key issues as H1-b. We lost a friend, not so much because of his committee assignments, but because he was willing to throw blood, sweat and tears into (tech) issues."

Closer to home, Bond says he was glad to see Dooley survive a tough race. "Among House Democrats, he's really a champion for the industry and he took some flak for that in his (largely agricultural) district. The six-termer doesn't sit on any House committees crucial to tech, but he's seen here as a guy willing to roll up his sleeves and dive into the trenches on important technology legislation.

The technology lobbyist also singled out two Southern Californians for their work. Dreier, chairman of the powerful House Rules Committee, is seen as a "real force" for technology, while Cox "made a big, big impact" with his efforts during the encryption debate and in opposing the Internet tax.

The three Northern California Democratic congresswomen most closely identified with technology — Zoe Lofgren, D-San Jose; Ellen Tauscher, D-Walnut Creek; and Anna Eshoo, D-Palo Alto — are workhorses for the industry. All voted with it on eight issues in the second session. Bond sees Tauscher as a "forceful," if not always recognized, legislator on tech issues.

Right now, ITIC wants to keep its momentum going into the 107th Congress when it debuts in January. On the front burner: online and offline privacy, broadband deployment, rewriting some export control laws to let manufacturers sell and ship more powerful computers as they come online and shortening the wait time for technology exports.

In the past year, the group has added more muscle, signaling the fact that tech realizes it can ill afford to ignore the Hill. Before, ITIC had perhaps a dozen members — major companies like IBM Corp., Intel Corp., Microsoft Corp., Motorola Inc. and Sony Corp. Newcomers include Agilent Technologies Inc., Amazon.com Inc., Canon USA Inc., Corning Inc., National Semiconductor Corp., Siemens AG, Nortel Networks Corp. and EMC Corp. Financially troubled Xerox Corp. bailed out.

> This was a Congress that reached across party lines and did something to strengthen our digital economy

Elsewhere in Washington, the very serious game of sizing up pro- and anti-tech lawmakers goes on among technology lobbyists. Not surprisingly, nobody wants to go on the record fingering the laggards. But a spot check of lobbyists around town finds a consensus that two returning members of Congress bear watching for their potential opposition to technology-related legislation.

Atop the list is Fritz Hollings, D-SC, a ranking member of the Senate Commerce, Science and Transportation Committee, which examines virtually all technology bills in the upper chamber. Says one lobbyist: "He's the guy coming right at the industry. He's so fundamentally against free trade that he begins to get frustrated with anyone who favors it. He's also got a personal conviction that the Internet is (skating along on tax-free thin ice)."

Massachusetts Congressman Ed Markey, a

Democrat who won re-election for the 13th time, is viewed by one technology lobbyist as "a guy who really understands the stuff, but who really wants to write laws handcuffing e-commerce and the Internet." Markey sits on the House Commerce Committee.

Another tech lobbyist here thinks the biggest loss for California was the defeat of James Rogan, R-Pasadena, who sits on the House Commerce and Judiciary committees. Jonathan Zuck, president of the Association for Competitive Technology and a shrewd Hill watcher, says Rogan "served on two committees that matter." Indeed, the ITIC scorecard showed that he voted eight times for key issues. However, he was also one of the GOP leaders who tried to oust President Clinton and that might have cost him the election.

Zuck says the loss of Charles Robb, the Democratic senator in the tech-savvy state of Virginia, is a blow. "He was active in the Senate on privacy and broadband issues" and sat on key committees.

Slade Gorton, the long-time Republican senator from Washington, was a fierce defender of Microsoft, but oddly enough, was opposed to the Internet tax moratorium. Gorton, a key technology adviser to George W. Bush, was opposed to any securities litigation reform, which the tech industry is backing. Gorton, who also was on the list of senators who were not strong supporters of technology, lost a close race to dot-com entrepreneur Maria Cantwell.

Looking forward, Zuck says privacy is the No. 1 issue for his group in the new Congress and Internet taxes are a close second. "Privacy polls well when you ask people about their privacy, but there's not a lot of (grass-roots) demand for legislation." He frets that major breaches of online privacy whip up politicians and rhetoric. "The worst thing possible is to have ill-considered privacy regulation that causes serious damage to businesses."

Zuck is also worried that state lawmakers will jump on the privacy bandwagon. "We could have 50 different privacy policies, which would be miserable for online businesses," he notes. Meantime, he knows the Internet tax moratorium isn't going to last forever either and that issue is bound to show up in legislative hoppers before long.

Still another Hill watcher here, Ari Schwartz, policy analyst for the Center for Democracy in Technology, says the new makeup of Congress — evenly split between Democrats and Republicans — "is a good sign because more and more technology issues are bipartisan." Schwartz notes that all the chairpeople of the Internet Caucus are returning to Congress — another positive sign. "Having a Congress that's educated on Internet issues is very important these days."

Schwartz's take on high tech's biggest loss in this election? Virginia Rep. Tom Bliley, a 10-term Republican who chaired the House Commerce Committee. He was a power in a state that's on the bleeding edge of technology. M

Chris Barnett, a 20-year veteran national business and technology journalist, covers the industry in Washington, DC, for numerous publications. He writes columns for *Techweek* and Copley News Service. He's reachable at cbarn@aol.com.

DUTCH CYBERSNOOPER LAW RUNNING ISPS OUT OF BUSINESS

AMSTERDAM, The Netherlands — Mergers of Internet service providers (ISPs) in the Netherlands are likely to accelerate because of rising costs as a Dutch law forces them to install sophisticated spying equipment, analysts say.

A 1998 Dutch law requires telecom firms to let cybercops monitor Internet users suspected of committing crimes. The justice ministry has given ISPs until mid-April to install equipment, which will separate, channel and translate data for law enforcement agents.

Most ISPs are already losing money in the Netherlands, where about 100 compete for about 6.8 million Internet users. Analysts said the additional costs could lead smaller ISPs to join forces or go out of business. Those that now make money only by taking a percentage of Internet call charges might have to add monthly access fees, they said.

"Consolidation is already taking place, but this will likely convince some of them to quit and sell their stuff," said Julius Baer analyst Marcel Hooijmaijers.

"In about two years, I expect, there will be about 10 ISPs left."

ISPs have been merging across Europe, where many companies charge no access fees and have been struggling to boost revenue from advertising and other services. In the Netherlands, companies will probably try to push part of the tab onto Internet users, according to the Association of Dutch Internet Providers (NLIP).

The association expects price increases of as much as 25 percent as ISPs have to spend between 500,000 guilders ($201,400) and 1.5 million guilders ($604,100) each to install equipment. That is five to 20 times the amount needed simply to be an ISP, said NLIP Director Hans Leemans.

"You could ask whether it's fair of the government to saddle companies rather than use taxes to pay for something that's in everyone's interest," securities analyst Bert Siebrand said.

Internet service providers in the Netherlands include World Online, which is being bought by Italy's Tiscali, KPN Telecom's HCC-NET and XS4ALL, Sonera Nederland, UPC Nederland, Versatel's Vuurwerk and Zon Nederland and MCI Worldcom's UUNET.

"We're not really happy with the justice ministry passing part of their costs on to the ISP sector," said Sonera Nederland spokeswoman Yvette d'Hamecourt. "Margins are not very high."

KPN Telecom declined to confirm the association's figures or estimate how much it expects to spend. "If the cost increases, it's logical that it will be passed on," said KPN spokesman Michel Hueber.

France Telecom-owned Casema, a cable TV firm that also offers Internet access, expects to invest less than 1 million guilders. "Surely there will be extra costs, but so far it's hard to estimate," spokesman Gradus Vos said. (Reuters) M

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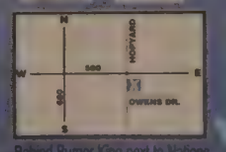

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- 45GB IBM Ultra ATA100 7200 RPM
- 1.44 MB Floppy Drive
- 32MB Matrox G450 AGP SGRAM Dual
- Medium Tower Case & 250Watt PS
- 48x IDE CD-Rom
- Sound Blaster Live Value
- 120W Speakers
- PS2 Keyboard & Mouse
- MS Windows 98 CD

Pentium III 800Mhz.. ..**$975**
Pentium III 933Mhz **$1150**
Pentium III 1000Mhz **$1270**

Upgrades Options:
NEC 17" 1280x1024 .27 SVGA...add **$218**
Optional: SCSI Ultra 160 Systems + Call

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- Tyan Tiger DUAL P-III 133Mhz FSB MB
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- 32MB Matrox G450 AGP SGRAM Dual
- Intel EtherExpess Pro 10/100B TX
- Workstation Case & 300Watt PS
- 48x IDE CD-Rom
- 3D Sound Card
- 120W Speakers
- PS2 Keyboard & Mouse
- MS Windows 2000 Pro CD

Dual Pentium III 800Mhz **$1395**
Dual Pentium III 933Mhz **$1730**
Dual Pentium III 1000Mhz **$1995**

Upgrades Options:
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Optional: SCSI Ultra 160 Systems + $ Call

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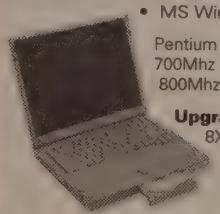
- LP-7500 Made by compal/oem DELL
- 15" SXGA Active-Matrix Display
- 128MB SDRAM (Up to 512MB)
- 20GB Ultra DMA Hard Drive
- 16MB ATI 3D Rage Mobility M-128 AGP
- 24x ATAPI CD-Rom and 56K V.90 Modem
- ESS Maestro- 3D Surround Sound
- Lithium Ion Battery (3-3.5hrs)
- 7.2lbs (w/ FDD & Battery)
- MS Windows 98 CD



Pentium III 700Mhz **$2065**
800Mhz **$2290**

Upgrades Options:
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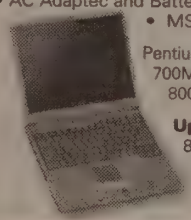
- ADI 3D Stereo Sound
- Easy Multimedia Controls
- AC Adaptec and Battery
- MS Windows 98 CD



Pentium III 700Mhz **$1970**
800Mhz **$2210**

Upgrades Options:
8X DVD-ROM Drive add **$130**
Pcmcia 10/100 Lan add **$75**

LP-7300 NOTEBOOK

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- 10GB Ultra DMA Hard Drive
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Upgrades Options:
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- 48x IDE CD-Rom & 1.44MB FDD
- Integrated 4MB 3D graphics
- Intel EtherExpress pro 10/100
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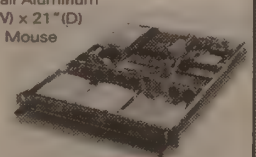
- 1.75"(H) x 19"(W) x 21"(D)
- PS2 Keyboard & Mouse
- Optional: Dual Pentium III CPU
- Optional: Hot-Swap Hard Drive



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Pentium III 933Mhz $1165
Pentium III 1000Mhz $1295
Linux/MS Windows 2000 Server O/S **Call**

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- Dual Channel One Ultra 160 SCSI Controller
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- Optional: Hot-Swap Power Supplies
- Optional: Hot-Swap Hard Drive Raid-5
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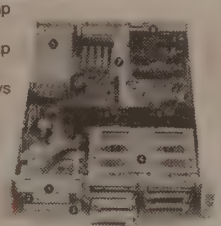

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- Up to 4GB ECC SDRAM 133Mhz
- Up to 180GB Hot Swappable Storage
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- Intel 5U Rackmount Server Case
- Hot-Swap Power Supplies
- Hot-Swap Hard Drive
- Linux/MS Windows 2000 Server O/S

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- Up to 180GB Hot Swappable Storage
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- Intel 4U Rackmount Server Case
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- 5X SCA2 hot-Swap Hard Drive
- Intel Server Management & Control software
- Linux/Solaris/ MS Window 2000 Server O/S

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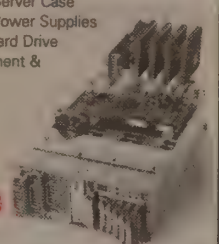

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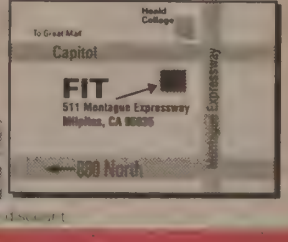

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- Asus GeForce2 MX w/32MB 4x AGP
- ViewSonic 17" E70 1280x1024 .26 Monitor
- Sony 48X IDE CD-ROM
- Sound Blaster Live Value
- Altec-Lansing Speakers w/Bass Subwoofer
- 56K PCI Supramax Modem or 10/100 NIC
- 1.44 Teac Floppy
- Medium ATX Super Case w/250 UL P.S.
- MS Windows Millennium CD
- MS Intellimouse
- Windows 98 Keyboard

T-bird 800MHz .....$ 1,129
T-bird 900MHz .....$ 1,159
T-bird 1GHz .....$ 1,199
T-bird 1.1GHz .....$ 1,239
T-bird 1.2GHz .....$ 1,519

AMD THUNDERBIRD POWER PACK (PACK 2)

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- Millennium G450 w/32MB Dual & 4x AGP
- ViewSonic 19" E790 1600x1280 .26 Monitor
- Toshiba 12X x 40X IDE DVD
- Sound Blaster Live Value
- Altec Lansing 54 4 Pts. Surround w/Bass Subwoofer
- 56K US Robotics Modem or 10/100 NIC.
- 1.44 Teac Floppy
- Zip Drive IDE 100MB
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- 30GB Ultra ATA100, 7200 RPM IBM.
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- ViewSonic 17" EF70 1280x1024 .25 Monitor
- Sony 48X IDE CD-ROM
- Sound Blaster Live Value
- Altec-Lansing Speakers w/Bass Subwoofer
- 56K US Robotics Modem or 10/100 NIC
- 1.44 Teac Floppy
- Deluxe Medium ATX Case w/250W UL P.S.
- MS Windows Millennium CD
- MS Intellimouse
- Windows 98 Keyboard

PIII - 800MHz .....$ 1,289
PIII - 866MHz .....$ 1,319
PIII - 933MHz .....$ 1,429
PIII - 1GHz .....$ 1,549

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- 46GB Ultra ATA/100, 7200 RPM IBM
- Millennium G450 w/32MB Dual & 4x AGP
- ViewSonic 19" PF790 1600x1280 .25 Monitor
- Sony 48x IDE CD-ROM
- Sound Blaster Live Value
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- 56K US Robotics Modem or 10/100 NIC
- 1.44 Teac Floppy
- Zip Drive IDE 100MB
- Deluxe Medium ATX Case w/250W UL P.S.
- MS Windows Millennium CD
- MS Intellimouse
- MS Internet Keyboard

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- ViewSonic 17" EF70 1280x1024 .25 Monitor
- Yamaha 8x8x24 CD-Rewriter SCSI
- 1.44 Teac Floppy
- Deluxe Medium ATX Case w/250W UL P.S.
- MS Windows Millennium CD
- MS Intellimouse
- Windows 98 Keyboard

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P III - 933MHz ..... $ 1,769
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- 128MB 133MHz SDRAM 168pin
- 20GB ATA100 H.D. Fujitsu
- Intel CA815 Video 4MB AGP
- KDS 17" 1280x1024 .26 Monitor
- Sony 48X IDE CD-ROM
- Intel CA815 Sound Card
- Amplified Multimedia Speakers
- 56K PCI Supramax Modem or 10/100 NIC
- 1.44 Teac Floppy
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- MS Windows Millennium CD
- Logitec Mouse
- Windows 98 Keyboard

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Celeron 700MHz ..... $ 849
PIII 800MHz ..... $ 949

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- ASUS A7V Apollo Pro 133, 4X AGP
- 128MB 133MHz SDRAM 168pin
- 20GB ATA100, 7200 RPM H.D. W.D.
- ATI Expert 98 w/8MB AGP
- KDS 17" 1280x1024 .26 Monitor
- Sony 48X IDE CD-ROM
- 3Com 3C905tx 10/100 NIC
- 1.44 Teac Floppy
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- Mitsumi Keyboard
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- ASUS GeForce 2 MX w/32MB & 4x AGP
- Sony 17" G200 1600x1200 .25 Monitor
- Pioneer 16 x 40 IDE DVD
- 56K US Robotics Modem or 10/100 NIC
- 1.44 Teac Floppy
- Deluxe Medium ATX Case w/300W UL P.S.
- MS Windows Millennium CD
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Sony 21" E500 .24 2048x1536 @60 ..... $ 829
Sony 19" G400 .24 1800x1440 @70 ..... $ 499
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ATI Rage Fury 16MB APG ..... $ 57
ATI Rage Fury Pro 32MB APG ..... $ 104
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LAWMAKERS READY AND WILLING TO INFRINGE FREEDOM OF SPEECH

By Jim Warren

"Congress shall make no law ... abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances." — Amendment I, U.S. Constitution

This is the first of the 10 amendments called the Bill of Rights that were adopted in 1791. About a century later, their protections were extended to also limit state laws. But you don't really think there are no laws abridging the freedom of expression, do you?

There are numerous laws limiting freedom of speech and of publication. Many were enacted when speech could reach only a few thousand ears, and the power of the press was limited to the few who could afford one.

Legislators and corporations are seeking greater censorship, often based on the lame excuse that our new communication medium — the Internet — justifies new chokeholds on the people's freedom to express opinions and exchange information.

This is the first of several columns concerning freedom and censorship on the Net. However, they will completely ignore the complex quagmire of "pornography" (which currently still has some constitutional protections) and "obscenity" (which can be legally censored and prosecuted), especially since those two concepts are so unambiguous and their legal differences are so simple to understand.

FIRST IN A SERIES

OFFICIAL SECRECY ACT?

Here is one of many examples of the efforts of those in positions of power, to censor and suppress the people's right to speak — and right to know:

In late October, the Republican leadership in Congress quietly rammed through a massive censorship plan, innocuously titled, "Prohibition on Unauthorized Disclosure of Classified Information." It was buried as Section 303 in a seemingly bland intelligence budget authorization. If signed into law, it would make it a federal felony for anyone to talk or write about anything that any federal bureaucrat decided to classify.

It would censor huge masses of information about how our government conducts business. For example, it could have stopped the *New York Times'* famous publication of the "Pentagon Papers," instrumental in finally bringing the Vietnam War to an end. (See Daniel Ellsberg's November 2, "Would Clinton ban release of the Pentagon Papers?" at www.salon.com/news/feature/2000/11/02/ellsberg/index.html.)

However, hawk-eyed citizen watchdogs, including Doug Hartnett, spotted it and promptly blitzed the Net with a call for President Clinton to veto it.

Hartnett commented, "On October 12, Congress made it a felony crime to disclose classified information, over protests that this hasty move would create an unconstitutional U.S. version of the British Official Secrets Act. By bypassing normal committee jurisdiction, and using unscheduled voice votes, sponsors of H.R. 4392, the Intelligence Authorization Act, succeeded in passing a law that will profoundly affect Congress' and the public's right to know about government misconduct.

"Despite reassurances that it would not change the meaning of 'classified,' the fine print in the bill removes all requirements that classified information be clearly marked to indicate its status. Under the new law, information could be classified even if there are no markings or other warnings. That revives a discredited concept from the 1980s known as 'classifiable' information, which means 'virtually anything.'

"It forces whistleblowers to seek advance permission before exposing nearly any evidence of bureaucratic misconduct, or risk criminal liability. The double whammy from this new definition combined with criminal liability creates an Official Secrecy Act far worse than the British version publicly feared."

Patrice McDermott of OMB Watch, a tiny citizen group that bird-dogs the Office of Management and Budget, joined Hartnett and others, mounting an explosive effort via the Net to pres-

sure Clinton to veto this censorship plan. Editorials opposing the now-discovered legislation quickly appeared in many leading newspapers.

However, Clinton's advisers were reportedly in heated disagreement about whether he should sign it or veto it. Finally, on the Saturday before Election Day, Clinton vetoed the Republicans' entire bill, saying it was "because of one badly flawed provision that would have made a felony of unauthorized disclosures of classified information."

On the same day as Clinton's veto, an Associated Press story reported that Joseph Rogoskey, a 20-year veteran FBI agent, had gone to court seeking permission to tell the president and key members of Congress about, "what he considers to be serious and criminal misconduct by federal workers during a top secret, undercover national security operation." Clinton's FBI Director Louis Freeh is vehemently opposed to granting such permission.

One might wonder whether Clinton would have vetoed the bill if it had been offered to him at the beginning of his presidency, when it could have helped him protect eight years of his administration's activities from possible leaks.

That was merely one example of the continuing blitz of legislators' censorship efforts. Others are uniquely targeted at the Net. For instance, California's Democratic Sen. Dianne Feinstein has been ardently seeking to censor information on the Internet about drug making and marijuana cultivation. She seems completely oblivious to both the global nature of the Net, and the contortions this would cause for online access to legitimate pharmaceutical, chemical and agricultural information, research and education. She also casually ignores that the same information is available in numerous print publications, which have more clearly established First Amendment protections.

In the final weeks prior to the elections, several Web sites popped up around the nation to help supporters of Green Party candidate Ralph Nader in states where Republican George Bush had a reasonable chance of beating Democrat Al Gore. Their goal was to swap their votes with Gore's supporters in states considered "safe" for the Democrat, thereby gaining Nader the necessary 5 percent of the vote that would enable him to get federal matching funds.

On Monday, eight days before the election, California's Republican secretary of state, Bill Jones, suddenly shut down one such site — voteswap2000.com — that was based in California. He threatened its operator for violating the state law of offering an "inducement" for citizens to vote differently than they otherwise would have.

Within days of Jones' efforts to block Nader and Gore voters from "chatting" about who might consider doing what with which for whom, the American Civil Liberties Union (ACLU) of Southern California sought a temporary restraining order to block Jones' censorship. A judge refused to grant one.

Says one ACLU attorney: "Discussing and agreeing to a cooperative voting strategy is absolutely distinct from offering or receiving a payment for a vote."

Although voteswap2000.com was shut down, similar swap sites based outside of California remained operational.

Please note that voteswap2000 was not, itself, offering any inducement to vote one way or another. Just as Napster has allowed individual music owners to contact each other to pursue legally questionable exchanges, it was simply helping citizens contact each other so that they might choose to pursue cooperative political strategies.

Vote-auction.com offered a more controversial option. It helped vote buyers get in touch with vote sellers, until a politically "sensitive" private corporation, Network Solutions Inc., unilaterally censored it.

The nation's foremost domain-name service, Network Solutions deleted its DNS entry eight days before the elections. However, the domain was registered in Europe and could still be reached at http://62.116.31.68/. Half a dozen other vote-auction sites were also getting registered around the world.

There are lots of hidden gotchas to this free-expression stuff, especially when communication is global, fast and free. With all the innovations seen in this election cycle, it will be interesting to see how the Net twists democracy's tail in future elections.

Future columns will continue exploring complexities of freedom of expression and its censorship, both justified and capricious. **M**

Under the new law, information could be classified even if there are no markings or other warnings

Jim Warren founded *InfoWorld*, was founding host of PBS' Computer Chronicles television series, founding editor of *Dr. Dobb's Journal of Computing* and served five years on the board of directors of Autodesk Inc. Copyright © 2001 by Jim Warren. Permission herewith granted to copy-in-full for any nonprofit use. Reach him at jwarren@well.com.

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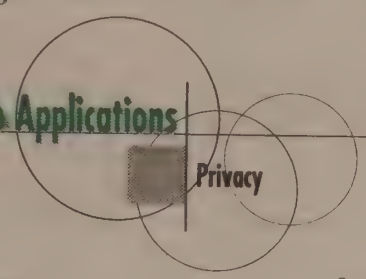
THE COMPLICATED FLIP SIDE OF PRIVACY ON THE WEB

By Joe Paone

The prevailing assumption is that protecting the privacy of Internet users is a good thing — that it should be protected at all costs and wherever possible. That's because the average consumers or Web surfers, many of whom wish to shield themselves from the prying eyes of corporations, marketing organizations, the government and hackers, would prefer their privacy to be safeguarded as much as possible.

Members of the media are inundated with stories and polls regarding users' concerns about the exposure and use of their private information once they are logged onto the Internet. Some have championed the activities of privacy advocates, who not only work to make corporations and marketers play fair, but also seek to generate privacy legislation on Capitol Hill. Today, a large number of corporations and marketers present detailed privacy policies on their Web sites that tell users up front exactly what the companies plan to do with personal information.



Stories in *MicroTimes* and other publications discuss products and services that enable users to surf the Internet anonymously, or as anonymously as possible. And some users go so far as to maintain an anonymous Internet lifestyle, sometimes at the expense of functionality or performance.

This is all viewed as good news in many quarters of the user community. Privacy is at a premium.

But what if the tables were turned? What if you were verbally attacked or stalked by an anonymous Web user? You'd probably want to know who that person was as soon as possible. But here is the gotcha of the situation: Who are you to say that the offensive user's privacy isn't just as valuable as yours?

THE LEGAL BATTLEGROUND

The legal system and the Internet community are quickly finding out that maintaining privacy is not always a noble endeavor. And that makes it a much more ambiguous issue, one that could be much tougher to legislate and adjudicate than even the most pessimistic observer might have thought.

"This is a tricky area for the legal system to tread," says Lance Cottrell, founder and president of Anonymizer Inc., a provider of online privacy services based in San Diego.

Some recent court cases — and there are, by some estimates, hundreds of them in various courts across America right now — illustrate the problem of simultaneously protecting privacy but also punishing abusive behavior.

Invariably, the plaintiffs claim they have been damaged and sue to gain permission from the court to ask ISPs for the identities of the defendants. The defendants often shield themselves with the First Amendment, and the defense attorneys, frequently from the American Civil Liberties Union (ACLU), argue that online anonymity should be protected the same way anonymous fliers and other printed material are protected.

Should Internet speech be judged differently from other forms of public speech? Should it have its own set of rules?

No, says Ari Schwartz, policy analyst at the Center for Democracy and Technology (www.cdt.org), a privacy-oriented political and consumer-action group based in Washington, D.C.

"Internet speech should be viewed no differently than offline speech," says Schwartz. "We shouldn't have any different laws for Internet speech than the laws we've had governing speech for the past 100 years."

"Anonymity has a long history offline," Cottrell concurs. "The authors of the Federalist Papers were anonymous. We have phone booths and corner mailboxes, both of which can provide anonymity."

Just as in other forms of media, there should be specific cases where anonymity is forbidden, and the rest of the time it should be allowed, says Cottrell.

"It is possible to create regions on the Internet where strong authentication is enforced," he says. "For example, an online bank or brokerage

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Flip Side Of Privacy On The Web

continued from previous page

is an anonymity-free zone. But the default should be strong anonymity."

GUARDING AGAINST FRIVOLOUS LAWSUITS

Meanwhile, the lawsuits proliferate. Judges seem to be using careful rhetoric when deciding anonymity-related cases, as each is being tried on its own merits.

For example, privacy advocates viewed a decision rendered in November in Pittsburgh, PA, as a partial victory, but of course, that means it's a partial loss too. A judge, ironically, was the plaintiff; she accused the anonymous author of two Web sites of defamation of character. An Allegheny County Court of Common Pleas judge allowed the plaintiff to learn her attacker's identity, a decision protested by the defendant's ACLU lawyer.

But the judge also issued a confidential order stating that the plaintiff could not reveal the identity of the attacker to anyone else. And more significantly, the presiding judge also issued a stern warning that could set precedent: Identities must not be revealed to plaintiffs unless the plaintiff's complaint has merit.

The ACLU lawyer, in an interview with the *Boston Globe*, said the decision set a "great precedent" and predicted that most defendants under this logic would preserve their anonymity.

The ACLU is keeping close tabs on these cases, because while one might argue that identities of anonymous users who do real harm to individuals should not be revealed, there is concern that anonymous critics could be outed for arbitrary or recklessly vengeful reasons. As a result, their supports say, their rights to free speech would be infringed. This is an especially acute concern when it comes to anonymous criticism of public figures; the Pittsburgh trial was, according to most accounts, the first such case.

The ACLU of Pennsylvania states on its Web site that it "is concerned that public figures are improperly using libel lawsuits to unmask anonymous critics. There is virtually no chance of winning such a case under the very difficult 'actual malice' standard imposed by the First Amendment, but simply 'outing' the speaker does the damage." That damage, the ACLU says, is that dissonant voices are censored unnecessarily.

The ACLU, other privacy advocates and some judges are, in effect, saying, "Show us the damage and we'll get you the names."

That is because many lawsuits are being viewed as simply attempts to put a face on the disembodied voice on the Internet — in privacy advocates' eyes, an attempt to harass and intimidate the anonymous speaker into silence and to inflict punishment for unfavorable opinions.

CORPORATE DAMAGE CONTROL

Corporations and people in positions of power are decidedly uncomfortable with their lack of control over their images on the Internet. "The Internet gives the average person a way to express their opinion such that was the exclusive domain of corporations before," says Cottrell.

Though corporations are indeed sensitive to criticism, that doesn't necessarily mean they should be privy to the identities of anonymous critics. Many cases brought to court, in privacy advocates' eyes, are frivolous, and therein lies the danger.

For example, in a 1999 case, Raytheon Co. sued four employees for damages in order to identify them as the authors of Internet messages it said defamed the company or disclosed secrets. After the employees' identities were revealed and they left the company, Raytheon dropped the suit. Privacy advocates argue that if there are no damages, there should be no suit and no identity revelations.

A recent case in Miami proved to be a battleground over this point. The CEO of a marine services company sued to find out the identities of those who posted allegedly defamatory remarks about him on Yahoo! and AOL message boards. He claimed he was forced out of the company because of the ensuing innuendo.

> What if you were verbally attacked or stalked by an anonymous user? You'd probably want to know who that person was, as soon as possible

In October, an appeals court ruled in his favor, and pending appeal, Yahoo! and AOL will reveal the names to him. The ACLU, representing up to eight of the anonymous posters, claims the court did not examine in a thorough enough manner whether the messages actually caused harm.

"Before anonymity can be breached, the plaintiff has to show that this is a legitimate lawsuit and not a baseless lawsuit," says Ann Brick, staff attorney for the ACLU of Northern California in San Francisco.

Most agree that it would be difficult to codify exactly when anonymity should be breached.

"Providing anonymity which can only be breached in situations where we all agree it should be breached — that's virtually impossible," says Cottrell. "It's possible that anonymity would be breached in all sorts of inappropriate ways. People can make up accusations, just to subpoena the identities."

While privacy advocates do not condone the use of anonymity for illegal behavior, they do not

wish to surrender the virtues of anonymity for all because of the shameful actions of a few. They are hesitant to give up ground on this issue because the survival of anonymous Internet speech remains extremely vulnerable, says Schwartz.

THE MYTH OF ANONYMITY?

"The real concern is that we don't have any privacy online," he says. "The Internet is a more difficult place to speak anonymously. People tend to think that the Internet is faceless. If anything, it's easier for law enforcement to catch people online than they can offline."

Lance Cottrell at Anonymizer Inc.

Schwartz explains that the privacy of Internet speech is more precarious than other forms because third parties are involved.

"A third party, such as an ISP, hosts the information," says Schwartz. "So law enforcement doesn't need a warrant to get into your house; they don't need permission from a judge."

He admits that while Internet users must be vigilant about maintaining their privacy, in some cases, anonymity must be compromised for legitimate law enforcement purposes. "If something illegal is being done online, law enforcement should be given the tools to track the offenders down," says Schwartz.

Cottrell's anonymizer.com provides anonymous Web surfing and e-mail to thousands of users. Of course, some of those users could be up to no good.

"I'm not happy to provide anonymity to someone who is using it for criminal purposes," says Cottrell. But it is impossible and impractical for the company to monitor or reprimand bad behavior. "We've discovered that we're not really in a tenable situation to make those calls," he says.

But Schwartz says even services such as anonymizer.com have been compromised, and that almost all Internet traffic can be traced and pinpointed. Watchdogs such as the CDT and ACLU are constantly monitoring law enforcement agencies for signs of abuse of monitoring tools.

"As one of our lawyers says, we're in the golden age of wiretapping," says Schwartz. "Law enforcement has tools it didn't dream of 10 years ago."

Cottrell believes that standards for anonymous speech will emerge over time, and not only through legislative and judicial means.

"If anonymity is given a chance to evolve naturally, we'll find that people will weigh anonymous opinions differently than nonanonymous opinions," he says.

"We see this even now. For example, there are the people who post about stocks to Yahoo message boards. Given no reputation, most people don't believe them.

"The sense will be caveat emptor," says Cottrell. "Some random Web site will not be given much more credibility than bathroom graffiti."

In the meantime, however, both corporations and privacy advocates will be carefully monitoring anonymity-related court cases ... and battling out the issue.

"The ability to post anonymously is important," says the ACLU's Brick. "There is a long tradition in this country of anonymous speech. We'll see how the case law develops." **M**

ANONYMOUS WEB SURFING

Looking to use the Internet anonymously? Try one of these sites. But remember – you might sacrifice some (or a lot of) performance, and you might have to look at banner or pop-up ads. Some services offer anonymous Web browsing, FTP and/or e-mail, while others offer much more comprehensive services for a fee.

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Ultimate Anonymity	www.ultimate-anonymity.com	One-time membership fee	None

Joe Paone, a technology journalist based in Philadelphia, has covered a variety of networking and computing subjects since 1991. He served as news editor for *Midrange Systems*, technology editor for *INTERNETWORK* magazine and senior writer with *LAN Times*. Paone can be reached at paone44@att.net.

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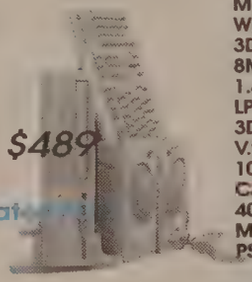

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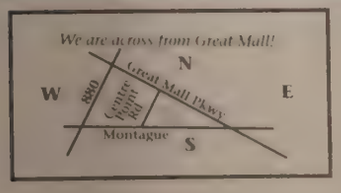

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METRICS AND THE MISMEASURE OF E-BUSINESS

By Rick Cook

You can't run a business without metrics. Some companies do without formal metrics, but everywhere you look, there is a yardstick that top management and stockholders are holding up to corporate performance. This is a special problem in the world of the Web because so many metrics are nebulous and many of the things we'd really like to know we can't measure.

Sometimes it seems as if the attitude is "we gotta measure something, so let's measure this." This is no way to run a company for very long.

Metrics can kill you if you pick the wrong one. The reason you need to be so careful is that there is a very natural tendency to maximize performance using certain measurements and call that success — whether it is helping you succeed or not.

Even maximizing the "important" things can lead you astray. The classic business example is the company where the stock price, or quarterly earnings, is all-important, so all business decisions are subordinated to the need to pump up those numbers.

This particular version has led to several well-publicized incidents of accounting manipulation in an effort to keep the stock and earnings numbers up — sometimes to the point where the company goes bankrupt and people go to jail. More commonly, it just results in inefficient management and the overriding goal becomes meeting the next quarter's projections at the expense of profitability, or even long-term survival.

PARTS ARE NOT THE WHOLE

Sometimes we err by substituting a part for the whole. Back in the 1950s, advertisers had a well-developed paradigm for the buying decision that divided it into a number of phases. One was "recognition," on the very reasonable theory that if your customers don't think of your name when they think of your kind of product, they're probably not going to buy from you.

So one of the stated goals of advertising campaigns in those days was to move consumers through the steps of the buying process and the place where television was considered most helpful was in building name recognition for the advertiser. So naturally ad agencies believed that the more recognizable an ad made the product, the more successful it was.

The result was a spate of the most annoying commercials that have ever been unleashed on the American public. Companies seemed to be vying to outdo one another in the obnoxiousness of their commercials.

A lot of them got pretty good at it, which is why, if you're of a certain age, there are still phrases that reflexively set your teeth on edge. My personal unfavorite is "Wouldn't you really rather have a Buick?" for the whiny, nasal jingle that started that way. Needless to say, I've never owned a Buick and neither has anyone in my family.

In the presidential election of 1936, a *Literary Digest* poll of 2 million people concluded that Alf Landon would beat Franklin Roosevelt in a walk. What the magazine wanted to know was how many people would vote for each candidate. What it tried to measure was how many people chosen from telephone books and auto registration lists intended to vote for each candidate.

For the time, it did a fairly sophisticated job of measuring its opinions, which was utterly irrelevant because in 1936, people with telephones and automobiles didn't reflect the voting population at large. Roosevelt swamped Landon.

A lot of metrics measure stand-in variables, and in some cases, those variables don't reflect what we really need to know. But given half a chance, organizations will maximize irrelevant metrics just as cheerfully as if they were critical to business success. In the worse case, you actually end up minimizing what you really want to achieve.

The problem is especially acute on the Web because most of the things we really want to know we cannot count. The classic example is the number of separate individuals visiting a site.

Log files don't provide this information since they only indicate the server originating the request; a lot of the load is cached today and quite a few ISPs and large companies use proxy servers that hide the number of users behind a single IP

continued on page 41 ➤

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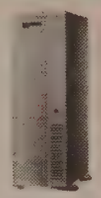

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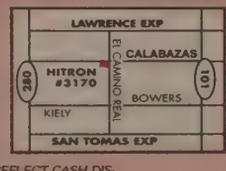

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Making Technology Pay

continued from page 39

address. You can use cookies, passwords or some other means of positively identifying each originating browser, but that not only alienates users, it overcounts the ones who visit the site from multiple computers, such as at home and in the office.

So we estimate. We use characteristics extracted from log files to establish criteria that we think in most cases will define an individual user. Or we use more sophisticated methods of estimation. But in the end, we're estimating and if we forget that, we're in trouble.

> Given half a chance, organizations will maximize irrelevant metrics just as cheerfully as if they were critical to business success

In fact, we could be in trouble anyway because some of the time, the ultimate customer isn't really interested in how many people visit the site. What the customer — be it advertiser or site owner — cares about is the amount of revenue the site generates.

It's fairly easy to do things that will increase the number of visitors and actually hurt the total revenue.

The classic example is using misleading meta tags so the site is misidentified by search engines, or promising something you have no hope of delivering.

MIXED METRIC STRATEGIES

More sophisticated measurement strategies not only use metrics carefully — for what they tell the site owner, not their ease of use to collect the data — they also seek a compromise between the need for a nice, simple number and the knowledge that no one statistic will tell the user everything.

This is why the better Web measurement companies use elaborate metrics and are very careful to tell their clients exactly what they are measuring.

Media Metrix Inc., a Jupiter Media Metrix company based in New York City, has drawn on decades of experience in radio and television to set up statistically accurate samples of Internet users and monitor their surfing habits. This involves installing monitoring software on the panel members' computers to track their use. The panel's viewing habits are extrapolated to the Net population's (or the part of it of interest) habits.

Another effort is Word Of Net Inc., a Los Angeles company that tries to identify sites with influence on would-be customers. It combines information such as search engine hits, links to a site from other sites and similar data to produce a measure the company calls "online visibility."

The idea is that if potential customers can't find you, they aren't going to visit your site. While traffic measures tell you how many people visited the site (theoretically anyway), the online visibility rating attempts to measure how effective you are at bringing the site to the notice of would-be customers.

"What we're trying to measure are the number of people who have the opportunity to come to your site because of the effect or lack of effect of your marketing program," says Jim Smith, Word Of Net's chief technology officer. "What a high online visibility rating means is that your URL is pervasive on the Web. You appear highly rated in the search engines, you have a lot of category listings and a lot of people are linking to your site."

I don't know if Word Of Net has the answer or not. Certainly I'd give you long odds that it doesn't have the whole answer. However, it's an interesting approach and at least in theory, it correlates strongly with the way people actually shop on the Net.

It also represents the kind of elaborate and sophisticated mixed metric strategies we're likely to see as e-commerce and e-advertising continue to grow.

The primary strategy for avoiding metric trouble is to understand clearly what you're measuring and what the limitations are of both the thing being measured and the metric you're using. As Smith points out, traffic isn't the same thing as sales. Neither, for that matter, is Word Of Net's online visibility number. However, if you understand them and their limits, they can both give you useful information.

The second thing is to avoid false precision. Your results are no more accurate than your metric, no matter how much statistical manipulation you do. If your metric only gives you rough results, fine, but don't base strategic decisions on a couple of percentage points change in a metric that only roughly reflects what you really want to know. **M**

Rick Cook has been writing about computers and high technology for more than 15 years. He has written for *Barron's, Byte Magazine, VARBusiness, Omni, Popular Science, High Technology, Aviation Week, Space Technology, Digital News & Review, SunWorld, JavaWorld, LinuxWorld, Managing Automation, Datamation, InfoWorld, Mangajin* and others. He learned Fortran on an IBM 1620 before becoming a newsman. He is the author of seven science fiction and fantasy novels. You can reach him at rcook@bix.com.

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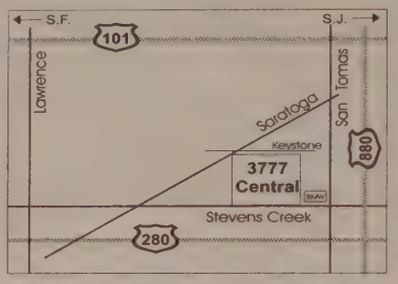

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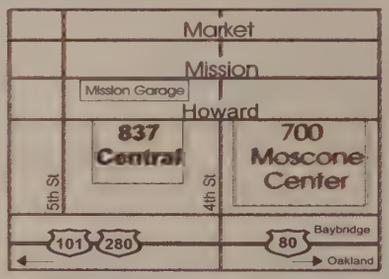

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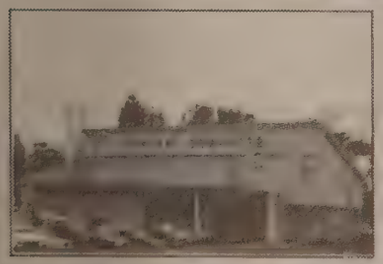

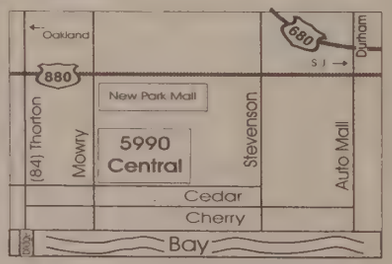

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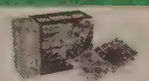

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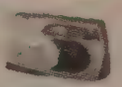

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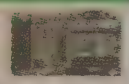

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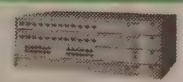

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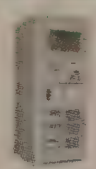

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SMART CARDS COULD EASE FEARS OF SECURITY-CONSCIOUS WEB SHOPPERS

By Julie Bort

Credit card companies are getting into the act as e-commerce develops as an industry. Indeed, they think they should be all over it, and as I begin to experiment with some of their e-commerce-friendly options, I'm beginning to agree.

They have created smart cards that should stimulate e-commerce by easing consumers' concerns over security. This makes sense. If fear of credit card fraud continues to be the stumbling block, that's something well within a credit card company's purview to address. Enter cards smart enough to know who is using them, and chips containing identity information that can be used for everything from credit card purchases to office building door access.

On the consumer e-commerce end of the spectrum, I know that I've been tempted to order an American Express Blue card. I'm not alone. When American Express launched the card, it estimated that it would acquire some 2 million cardholders by year's end. As early as April, it doubled that projection because it had already exceeded its first-year projections, reports market researcher Brittain Associates of Atlanta.

If any of you have one, please drop me a line at jbort@colorado.net and let me know how you like it.

Blue appeals to me because I love gadgets. (You should see my office. I've got a CrossPad digital ink pad for taking notes, a laptop and docking station, Iomega Zip drive, an HP OfficeJet and a Hello Direct headset, and my Palm IIIxe is on order). Blue is used with its own credit card reader that American Express will ship to you — a gadget deluxe for a PC.

Actually, there's a practical reason for the reader. It provides two-pronged authentication, combining something you have, the chip-enabled credit card, with something you know, a personal identification number (PIN). This is exactly the system used by banks for their debit cards at automatic teller machines.

The Blue card includes a magnetic strip, so it works with in-store readers and can be used by any store that accepts it. It also includes a smart chip for use when shopping online. The chip stores a certificate, which identifies the card. This chip is used in conjunction with its credit card reader, attached to either a serial port or USB port on the PC.

It also requires using what the company calls the Online Wallet, accessed through American Express' Web site. Services such as this one store credit card, shipping and other common information necessary for making a purchase. They then automate the laborious form-filling process during checkout. With Blue, when you are ready to make a purchase on the Web, you swipe the card through the reader and type in your PIN to authenticate yourself. Then the Online Wallet automatically fills out order forms for you.

Interestingly, American Express is marketing Blue as if it were its own online community, with chat sessions with rock stars and lots of other online goodies, such as financial planning tools.

Unquestionably, two-pronged authentication is safer than when no PIN is needed. If every transaction required authentication through the Online Wallet, then it would even protect against sloppy security of e-commerce sites. If a site stored your credit card number unencrypted on a hard drive, someone would still need the PIN to make a purchase.

Of course, archcompetitors Visa and MasterCard have picked up the gauntlet with smart cards of their own. Visa is, for instance, working on trying to get the merchant world to upgrade from magnetic strip readers to smart card readers. Moreover, some of their experiments show that the smart card's value isn't in putting a computer chip on a credit card, but in making the entire credit card a computer chip. In a trial of this concept, workers at Bank of America in San Francisco use a smart card that is a single identification device for door, computer network and Visa account access.

When it comes to products available now for the e-commerce consumer, Visa has taken a somewhat different tack. Perhaps this is because it relies on banks as issuing underwriters. Visa has partnered with a handful of third-party companies that offer electronic wallets — Aria Personal

E-commerce
E-com Intelligence

Shopper, MBNAwallet, CapitalOnewallet, NextCard Concierge — and rather than trying to protect your credit card number, it has adjusted its policy so that cardholders have zero liability on credit card fraud that occurs over the Internet.

I'm ambivalent about the use of electronic wallets. If it's with a financial institution you already use, that seems fine. For instance, if I opted to use Blue and American Ex-press' wallet, American Express already has my credit card and personal information on file. It could (and probably does) analyze my purchases.

But, while electronic wallets proclaim that they are protecting your privacy, the issue comes down to a matter of trust. Why do I want to let a third party store my credit card information and passwords? Sites that don't charge consumers a fee for their services do sell aggregated purchasing data to merchants. To me, its another case of giving up privacy for convenience, and in this case, I'd rather keep the privacy.

For those who don't want another credit card (like me), American Express offers the Private Payments service, which uses another security technique. It hides your actual credit card number from merchants and replaces it with one unique to the specific purchase. So, if a crook captures your credit card data while you send it over the Internet or from a merchant who is storing it unsafely, so what? That data can't be used for another purchase, American Express says.

The limitations of this over smart-chip cards is that such a system can't be used anytime you might need to present your credit card to the merchant, such as will-call tickets and travel arrangements. With travel and entertainment continuing to be two of the most successful industries on the Net, that's a big drawback.

Nevertheless, the system is still useful. I chose this option for ordering that Palm handheld computer I mentioned. I also chose the option of downloading the client-side application for Private Payments. American Express lets you do this entirely through its Web site. The client-side code is supposed to help automate the use of Private Payments.

> Some services store credit card, shipping and other common information necessary for making a purchase —then automate the process during checkout

The download took less than a minute, even on my slow-speed dial-up connection. I then browsed the offers available to Private Payments customers and noticed a $30 discount from Buy.com for all new customers on purchases over $150. (You know, new-customer incentives really bug me, unless they are coupled with even stronger loyalty incentives. Why should a new customer be treated better than a regular customer?)

I've been scouting these Palms for awhile and they are consistently sold at $249 online. Some places offered discounts, but I found that with the $30 discount and free shipping, this Buy.com offer was about as good a deal as I would find.

Using Private Payments was easy. Buy.com recognizes it as an option, so when I got to the checkout page, a new window automatically launched. It contained Private Payments' unique credit card number and expiration date. The Private Payments page also had this cool option: When I double clicked on the number, I could then drag and drop it into the other browser window. I therefore didn't have to type it in manually.

The Private Payments site also allowed me to choose which American Express account to bill. I suppose, for the truly paranoid, you could even choose the Blue card, swipe it and authenticate it. (Although perhaps you don't need to swipe when using Private Payments. I couldn't tell).

The transaction proceeded normally after that. I was forced to "join" Buy.com, which meant that it will be sending me e-mail, I'm sure, even though I opted out of the newsletter. It sure would be nice if sites let you patronize them before you had to join, but so be it. I received my e-mail notification from Buy.com that the order had been placed. That meant that the charge had been accepted, so Private Payments must have worked.

All in all, the growing options for credit card privacy are empowering to consumers. While the Web has a long way to go in customer service and privacy policies, securing credit cards against fraud is a huge step in the right direction. **M**

Julie Bort, a senior editor with *Network World*, is based in Colorado. She has written for *Computer Sources, Computerworld, Client/Server Magazine, Computer Retail Week, Federal Computer Week, InfoWorld, Inc. Technology, Network World's IntraNet, LAN Times, OEM Magazine, Software Magazine, SunWorld, Denver Post, VARBusiness* and a number of foreign computer industry trades, including *Australian Personal Computing*, the U.K.'s *Computer Weekly, Asia Computer Weekly*, and *Communications International*. She also is the author of *Building an Extranet* [John Wiley & Sons]. She can be reached at jbort@colorado.net.

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SHAKEOUT TIME LOOMS EVEN AS EUROPEAN ASPS BEGIN TO PROSPER

By Dermot McGrath

The phenomenal success of application service providers (ASPs) stems from a simple premise: that small to midsize enterprises (SMEs) prefer to rent an application service rather than develop it in-house. In essence, ASPs buy, install, host and manage the equipment and licenses necessary for organizations to run software. These applications can be anything from complex enterprise resource planning (ERP) or customer relationship management (CRM) packages down to common desktop programs such as e-mail or spreadsheets.

There are compelling reasons why organizations are increasingly turning to ASPs to handle their IT infrastructure. One is that SMEs usually lack the in-house IT skills or personnel to develop applications themselves. Also, the cost of building and maintaining the infrastructure internally is feasible only for large organizations with lavish budgets. Finally, there is the pressure of working in "Internet time," making speed of implementation ever more essential for mission-critical applications.

ASPs try to address all of these needs while offering predictable costs for services. Another bonus is that they offer a single point of contact for aggregating technology and service vendors — a major plus for overstretched IS managers.

By removing IT infrastructure headaches from the operational equation, enterprises are free to concentrate on core activities and grow at a faster rate. In short, ASPs promise more reliable computing at a lower cost of ownership and fewer maintenance and upgrade headaches for the user.

"IT users are fed up with software complexity, expensive and lengthy deployments, incremental productivity gains and nonstop change," suggests Lew Hollerbach, an analyst with Aberdeen Research, a market research firm based in Boston, MA. He believes that enterprises are moving steadily away from locally hosted computing toward "a new environment in which third parties will eventually assume most, if not all, of the responsibilities for providing IT solutions."

It's a simple idea that has given birth to a huge market. The worldwide ASP market will be worth $3.6 billion for this year and is expected to mushroom to $25.3 billion by 2004, according to San Jose, CA-based Dataquest Inc., a division of the Gartner Group.

While predictably, the U.S. led the charge in ASP adoption, Europe has been closing the gap. As well as having a much bigger percentage of SMEs than the U.S., the explosion of e-business in Europe is just now reaching the kind of critical mass needed for a healthy ASP market.

"The traditional way of managing IT is effectively obsolete," believes Javaid Aziz, CEO of Aspective, a pure-play ASP based in Essex, U.K. "Businesses across Europe are beginning to appreciate what ASPs can deliver. The winners will be those ASPs which are able to scale rapidly and provide the most value for their customers."

Although Europe accounted for just 20 percent of the global ASP market in 1999, it is projected to increase that share to 32 percent by 2004, thanks to the rapidly expanding use of Internet technologies outside the U.S.

"In the 'pre-Internet' world, it was common for the European and Asian markets to lag behind the United States," explains Ben Pring, principal analyst for Dataquest's Application Services Worldwide program. "However, by 2004 these markets will be as large and as mature in Europe and Asia-Pacific as in the United States."

Pring believes that a primary driver for the European ASP market is the emphasis on mobile applications and technology. "Mobile telecom operators will develop more sophisticated, business-user-focused applications, which are delivered in essence via an ASP market. The greater penetration of mobile/cellular users outside the U.S. will produce a fertile worldwide marketplace to exploit," he adds.

However, while the European ASP market is undoubtedly starting to heat up, most analysts admit that growth has not been as spectacular as originally forecast.

There is no shortage of potential scapegoats to explain this. Lack of security, poor reliability and widespread confusion about the purpose of ASPs are among the principal culprits, according to industry experts.

A recent poll of 306 European IT directors and managers from France, Germany and the

continued on page 51 ➤

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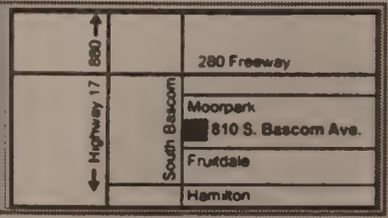

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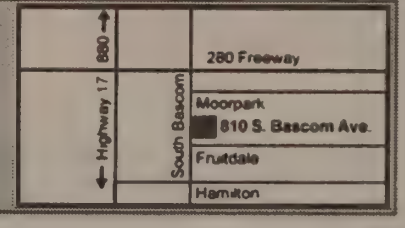

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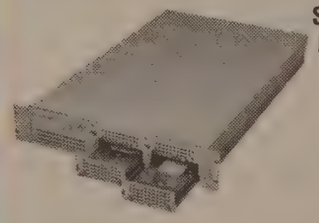

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Shakeout Time Looms As ASPs Prosper

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U.K. found that seven out of 10 have concerns about security, while more than half expressed doubts about the reliability of ASPs.

Claire Cook, research manager at Rhetorik, the Berkshire, U.K.-based market research firm responsible for the survey, said that European businesses need to prove the security and reliability of the ASP model if the market is to reach its potential.

"It's true that the ASP market has been really hyped up over the last nine months and some vendors are making unrealistic claims about the market potential. Companies need to stop promising a unique model and start demonstrating it as a model that works," she said.

Ensuring the security of networks and delivery channels would certainly be a step in the right direction, according to Chris Christiansen, program director for IDC's Internet Infrastructure Systems Software program.

"Strong and demonstrable security is of special importance to ASPs. Security is a horizontal and pervasive infrastructure tool vital to network, applications, and increasingly, content access and use. Prospective customers must be convinced that their corporate applications, data and transactions will be secure for them to even consider engaging an ASP solution," he said.

More fundamentally, ASPs have to become more proactive in educating the European IT community about the advantages of hosted software and services. Despite all the hype in the trade press, Rhetorik found that nearly 40 percent of IT directors and managers had never heard of the term ASP and knew next to nothing about the technology involved, the main players in the market or the potential benefits to their company from using such a provider.

Such confusion is understandable. Too many vendors, too many exaggerated claims and constantly shifting definitions of the ASP business model have all taken their toll on customer receptivity.

"ASP is really a single term applied to a number of quite different business models, related only by the common feature of delivering software services over a network," noted a recent study from Buckinghamshire, U.K.-based Bloor Research. "This is confusing to the marketplace and is only beneficial to suppliers that wish to associate themselves with a rapidly growing sector."

These business models include Web hosting specialists such as Agillion, ASP aggregator Jamcracker Inc. (and more recently Corio Inc.), and dozens of traditional pure-play ASPs such as Usinternetworking Inc. and Futurelink Inc.

Further muddying the waters are the efforts of industry heavyweights such as Microsoft Corp., Dell Computer Corp., IBM Corp., AT&T Corp, Oracle Corp. and others to muscle in on a promising market.

Another growth sector, especially in Europe, is the emergence of wireless ASPs such as Aspective Ltd., AirFlash Inc. and Geoworks Corp. Research firm IDC says there are currently at least 45 companies targeting the wireless space, which is expected to be worth $732 million by 2004.

While the wireless ASP market is currently regarded as a subset of the larger ASP space, some analysts believe that wireless is where the real growth will be in hosting applications.

"The core proposition of an ASP offering is transparently telephony-like, and telephony itself is rapidly becoming all about mobility," argues Pring of Dataquest. "The architecture of global competition is being currently established in the wireless ASP marketplace. Those that fail to position their organizations correctly in the next 18 months face the risks of both missing out on a major new opportunity and finding their core existing business subtly altered in a way that they are unable to control," he warns.

There's no doubt, therefore, that the func-

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IT users are fed up with software complexity, expensive deployments ... and nonstop technology change

ASPS IN EUROPE

Growth is expected to be explosive.

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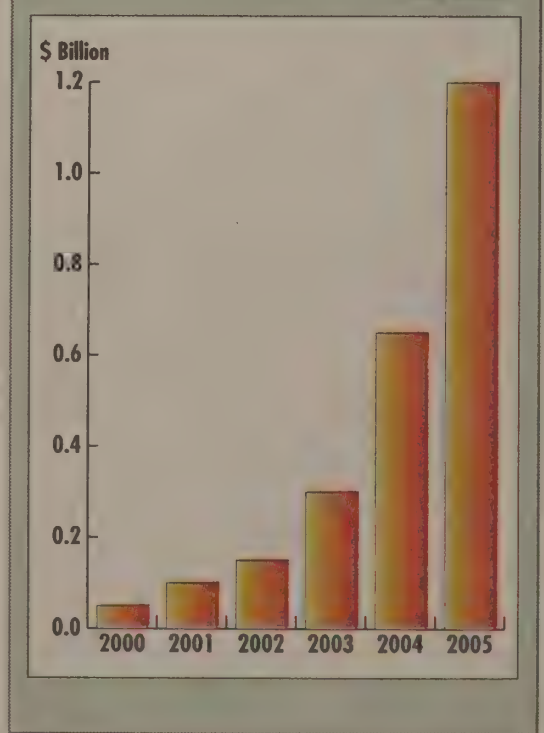

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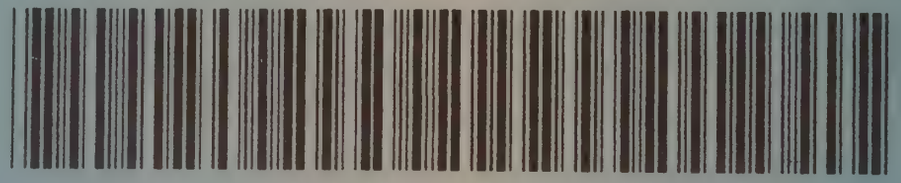

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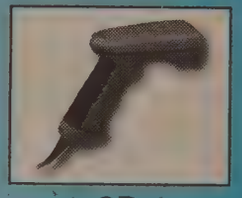
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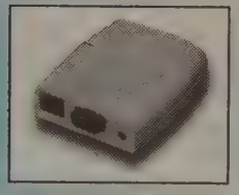
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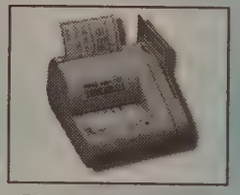
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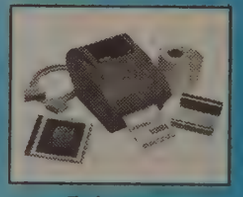
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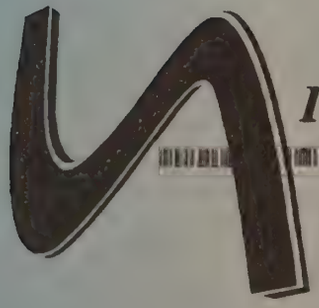

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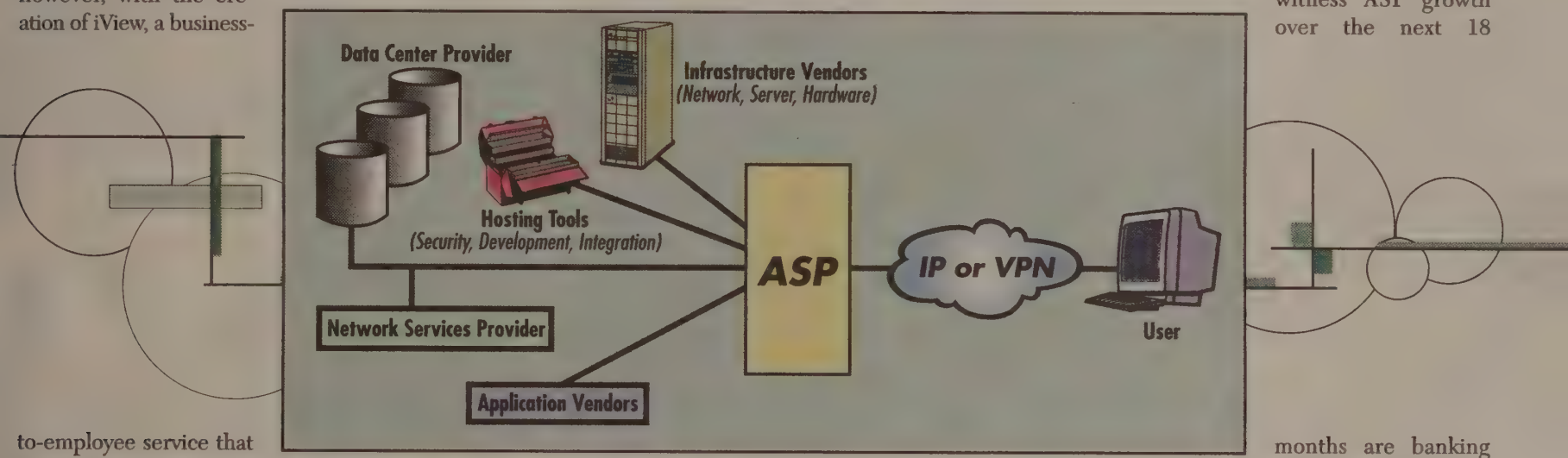
tion of an ASP has evolved well beyond its original mission to host applications; it is also expected to handle application integration issues for its customers.

Corio Inc., a Redwood City, CA-based ASP, is a classic case in point. Starting from straightforward hosting of applications for clients, Corio added customization and integration services to its corporate résumé. It pushed the envelope further, however, with the creation of iView, a business-to-employee service that creates a customized portal built around access to hosted applications.



iView allows users to create a personalized view of the information and application data that are relevant to their needs. Customers can also incorporate tailored feeds to collect information such as competitive and market research, stock quotes and news.

The driving factor behind the emergence of the ASP aggregation market is the idea that as wider adoption of the model takes place, companies will subscribe to multiple ASPs in order to gain access to the variety of applications needed.

While it is still less than clear which of the ASP business models will emerge as sustainable in the long term, all market watchers agree that a culling of the vendor ranks is inevitable as consolidation gathers momentum.

ASPs are now facing the moment of truth. They will either have to fine-tune or revamp their business model to generate additional revenue, acquire other ASPs to beef up their service range and customer base, or strike more strategic partnerships in order to survive the coming shakeout.

Gartner Group estimates that of the 480 retail ASPs in the market today, only 20 will be left standing as enterprise-class, full-service companies by 2004.

"There will be few viable vendors, the vendors will be different, the offerings will be different, and the term 'ASP' will no longer be used to describe these vendors," says Audrey Apfel, vice president and research director at Gartner.

Apfel also warns that an ASP meltdown will have much more serious consequences for other organizations than the current implosions of dot-coms.

"When dot-coms collapse, it has little effect on their customers and other industries. The ASP consolidation will have a domino effect, affecting business systems like ERP and accounting systems for companies that have outsourced these functions to ASPs. Those failures can quickly spread along supply chains."

The impact of consolidation on Europe's ASP scene is difficult to predict. What is certain, however, is that European players could be left standing in the blocks by their transatlantic rivals.

The past year has seen a number of U.S. telecommunications and Internet service providers (ISPs) teaming up with software firms such as Microsoft, Oracle, Siebel Systems Inc., and IBM's Lotus Development Corp. to leverage their European ASP efforts.

Pure-play European ASPs are a rare species and many of Europe's ISPs and telcos lack the systems integration expertise to complete the ASP jigsaw themselves.

Nevertheless, some observers feel that Europe's telcos and network service providers (NSPs) can utilize their role as key providers of connectivity and bandwidth to remain at the forefront of the ASP movement.

"They have the scale, bandwidth resources, facilities, sales channels, user trust and complementary products and services to bundle with them," is how a recent Yankee Group report summed up their prospects.

The industry sectors that are most likely to witness ASP growth over the next 18 months are banking and financial services, transport and utilities and travel and tourism, according to London-based research firm, Ovum.

Andy Bottomley, director of research for Durlacher Corp., a London-based research and investment firm, concludes that European carriers and ISPs must move fast or face becoming bit players in the ASP carve-up.

"Europe's ISPs could find themselves becoming lunch for aggressive and lateral-thinking systems integration houses — European or otherwise — over the next 12 months. Or some of Europe's systems integrators could be served up for breakfast to carriers and ISPs." M

Dermot McGrath is a Paris-based freelance journalist specializing in the high-tech industry. He is a previous editor of *The Echo* newspaper, based in south Dublin, Ireland and has written for a wide range of Irish and European publications. He has also contributed to *Computerworld* and *Intraware* in the United States and *Tornado-Insider* in Europe. He can be contacted at dermot.mcgrath @wanadoo.fr.

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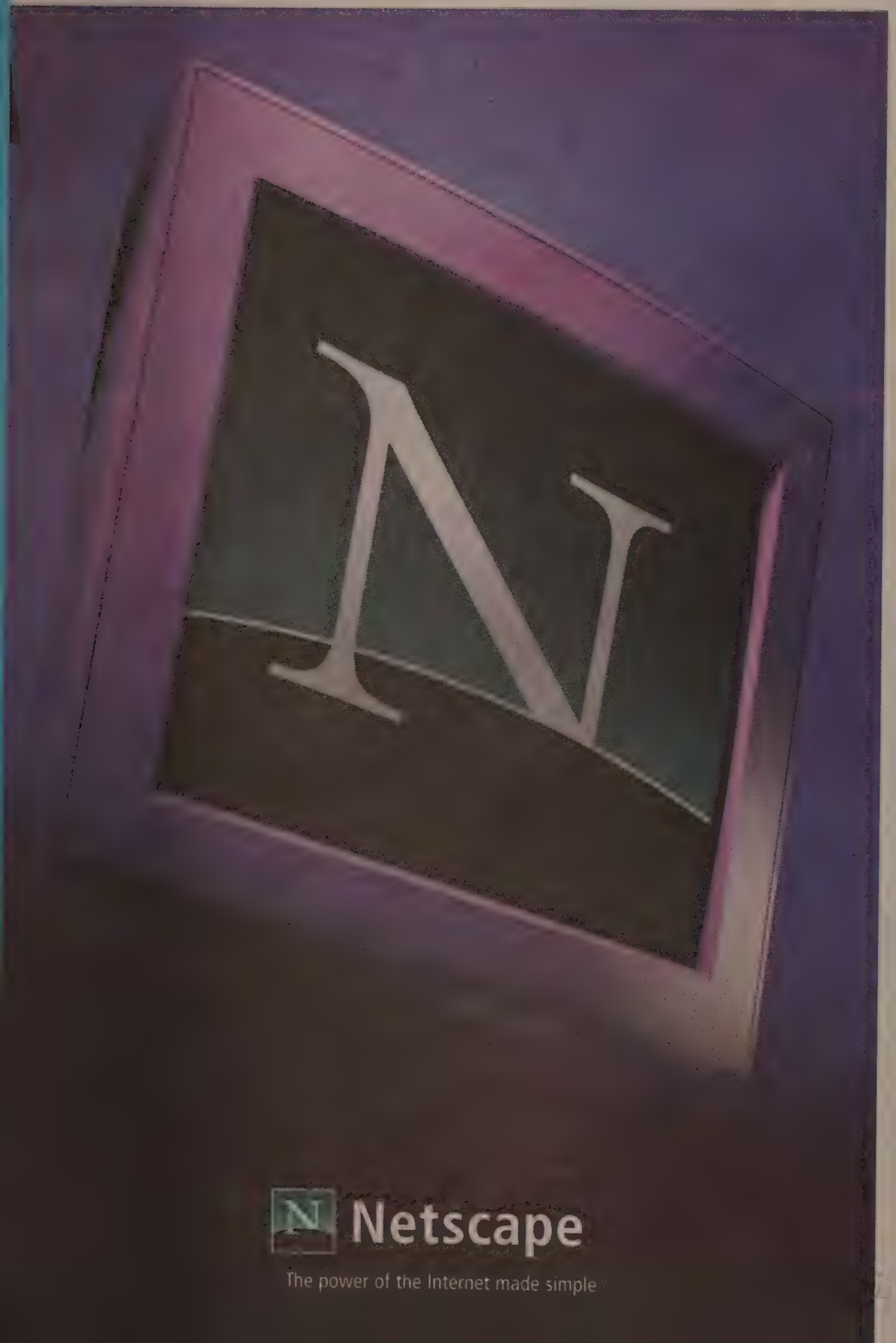

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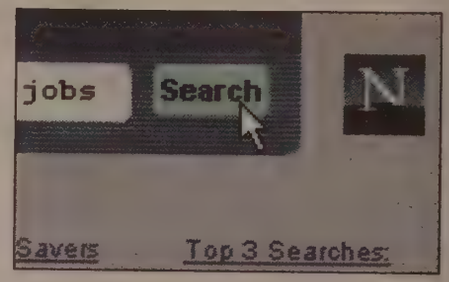

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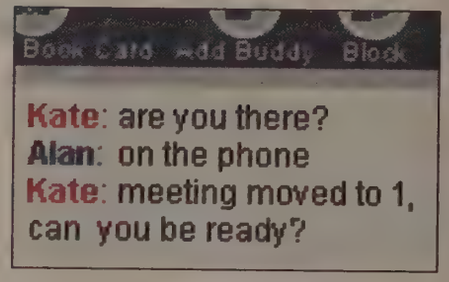

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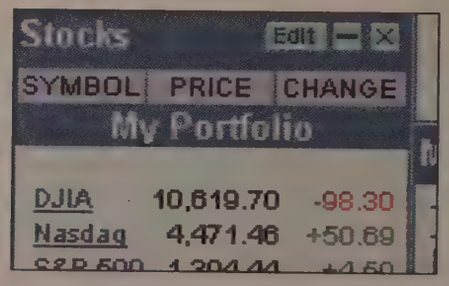

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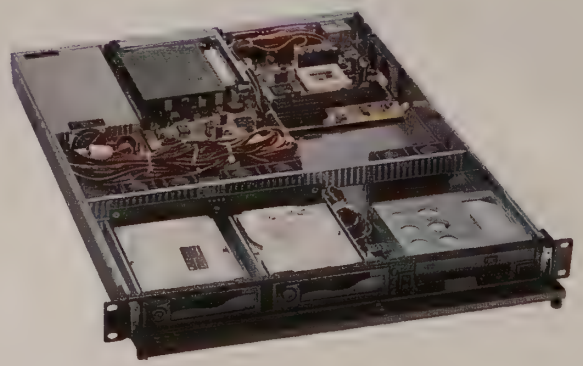

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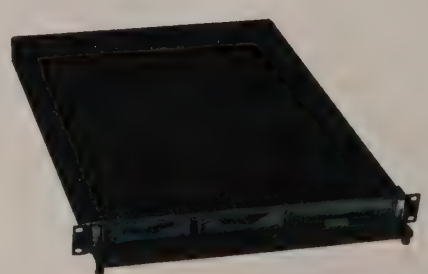

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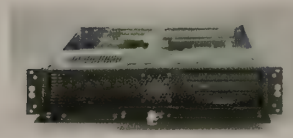

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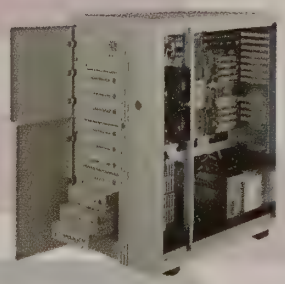

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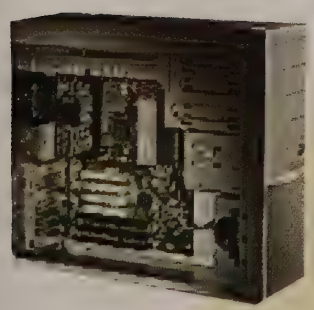

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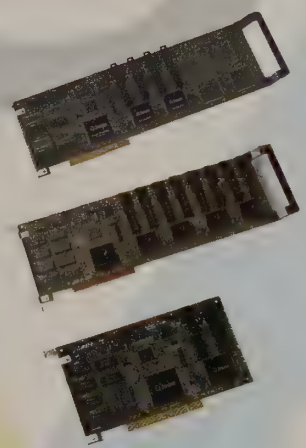

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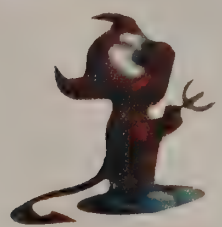

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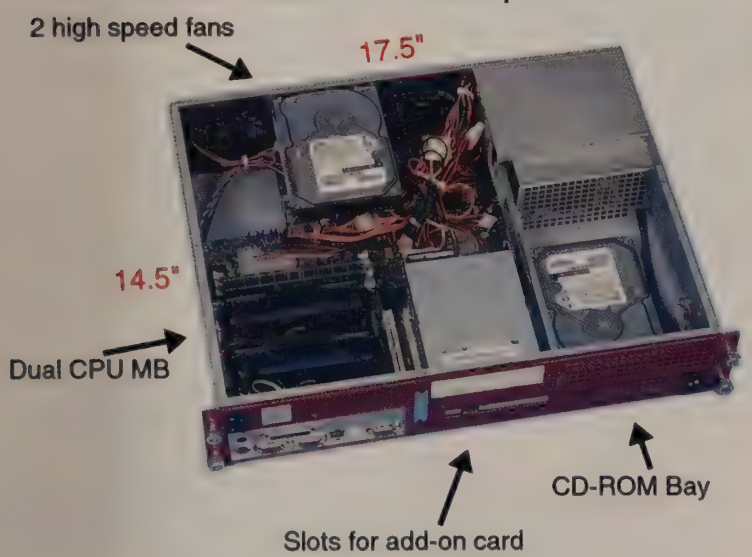

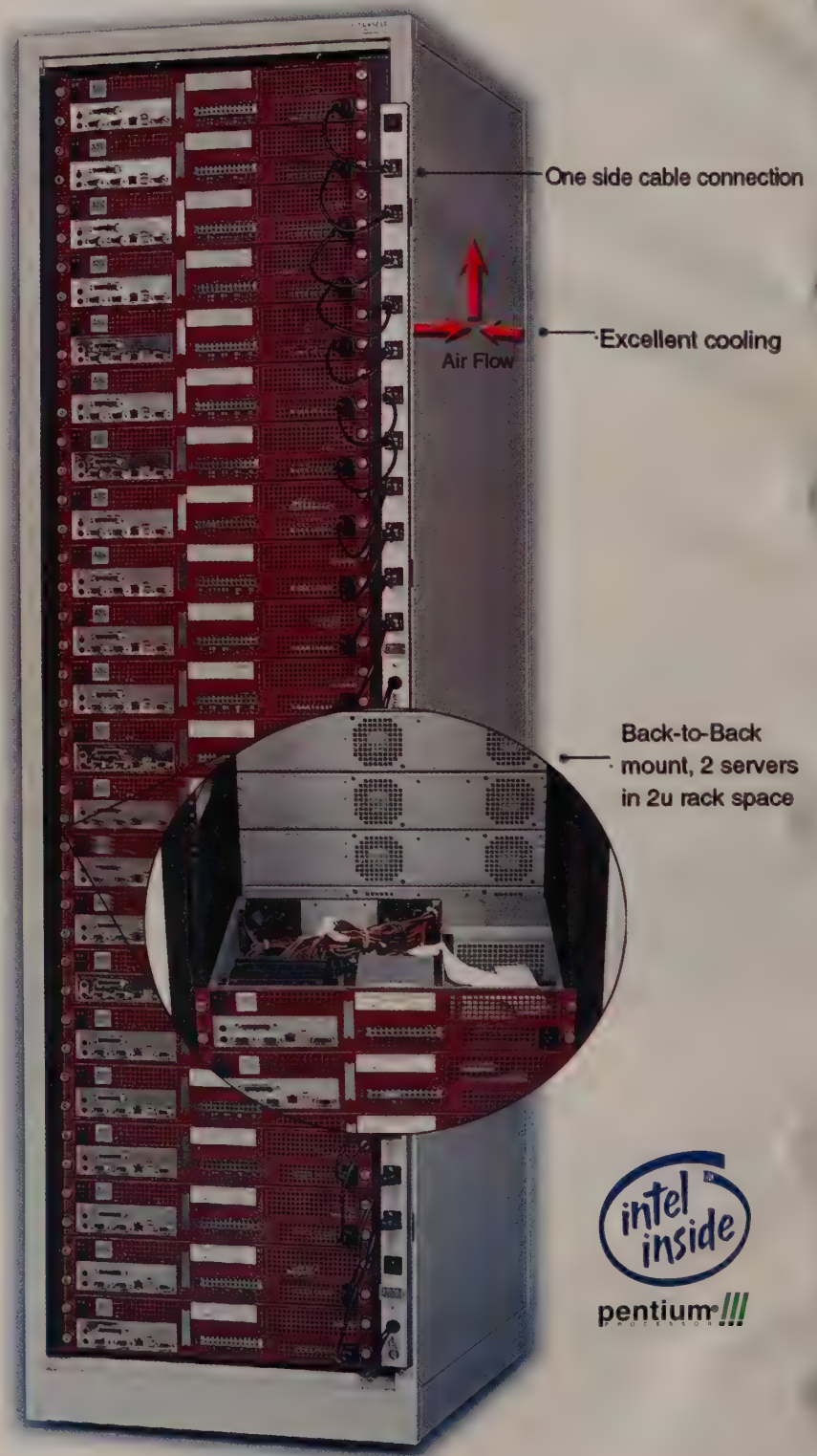

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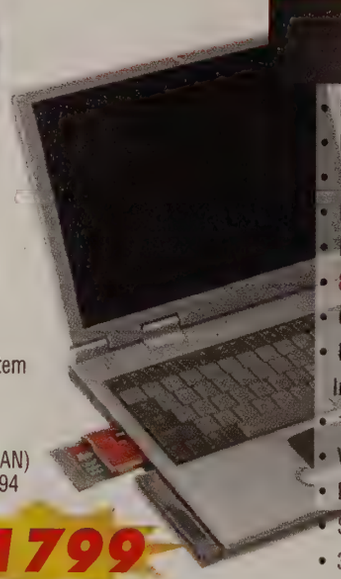

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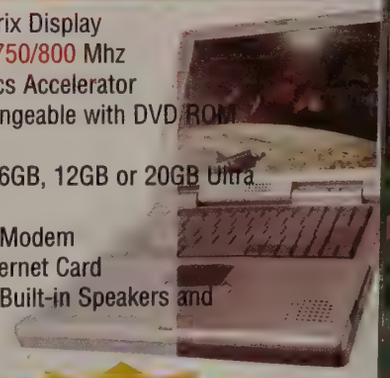

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Technoland's rackmount servers are the most flexible servers that are available from 1U to 8U. The servers are configurable with Pentium® MMX, AMD-K6®-3, Celeron™ or dual Pentium® III CPUs, Fault Detection function for temperature/fan status/voltage, hot-swap cooling fans, hot-swap redundant power supply, as well as 2 to 20 slots capability and single/dual or quad-system-in-one package.

Technoland can customize and optimize system performance for your needs in Computer Telephony, Internet, Call Center and Networking applications. Our servers are designed in compliance with FCC Class A and CE requirements and come with a 2 year parts and 3 year labor warranty. To optimize your server, please call us at 800-292-4500, or visit us at www.technoland.com

TL-SERVER 100 SERIES

TL-Server 100 series is the ideal space saving solution for Web Hosting, Internet Server, Thin Network Server and Firewall. It can be powered with Intel Pentium® III or Celeron™ CPU and up to 4-Ethernet ports.

TL-SERVER 200 SERIES

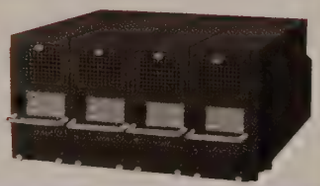
TL-Server 200 series is the space saving solution for Web Hosting, Internet/Intranet Server, Thin Network Server and Firewall. It has 6-slot capacity and optional powerful dual Intel Pentium® III CPUs.

TL-SERVER 400 SERIES

TL-Server 400 series is the cost effective solution with Fault Resilient functions for Web Hosting, RAID Engine, Network Server and Clustering Server. It is equipped with Fault Detection/Alarm module and hot-swap redundant power supply, plus Intel Pentium® III power and 14-slot expansion capacity.

TL-BOX (TOOLBOX PC) SERIES

TL-BOX(Toolbox PC) series is the space saving and easy to configure solution. It is equipped with Fault Detection module, hot-swap fan and also rackmountable. It has 5-slot capacity and optional quick-connection feature, and powers up to Pentium® III.



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New Products

XMetaL 2.0

SoftQuad Software Ltd. and IXIASOFT announced the integration of SoftQuad's XMetaL into IXIASOFT's TEXTML Server. This allows users to develop an integrated environment for creating, managing and serving XML documents to the Web or other applications. Together, the two products allow users to open, create and save documents to a base while simultaneously indexing the content. XMetaL and TEXTML are integrated using a set of macros available at www.ixiasoft.com. The macros are based on open source coding, allowing developers to modify them to accommodate the needs of their applications.

(416) 544-9000
www.softquad.com
$495

NetLedger 5.0

NetLedger Inc., an application service provider (ASP) that enables small businesses in the e-commerce economy, announced NetLedger 5.0, which allows small businesses to leap from online accounting to a full range of e-commerce capabilities, including operating an online store. It now offers flexible expense reporting, enhanced inventory options and enhanced accounting capabilities. It also gives users the ability to convert QuickBooks data into NetLedger with one click, and run their accounting and online commerce on the Internet in just minutes.

www.netledger.com
$5 per month per user without the online commerce feature
$50 per month for unlimited users for the version with online commerce feature

RightNow Web 4.0

RightNow Technologies Inc. announced its latest version of RightNow Web 4.0, enhanced with customer feedback tools, a new user interface, advanced search capabilities and an array of system management and report functionality. The product enables companies to improve the quality and responsiveness of their Web customer service, while at the same time helping to reduce support expenses. It allows businesses to implement a complete Web customer service product that can provide rapid return on investment. It supports SQL databases and server operating systems.

(877) 363-5678
www.rightnowtech.com

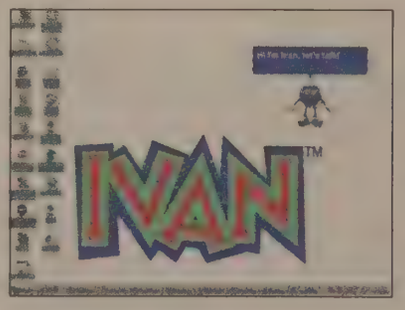
Dyn@mic Buyer

Bid.Com International Inc. announced Dyn@mic Buyer, a product that allows organizations to assess, in real time, the factors and criteria used in the traditional purchase process. Once buyers initiate a request for quotation or reverse-auction process, suppliers are notified and given the opportunity to respond with a proposal. After responses are submitted, Dyn@mic Buyer allows purchasing agents to analyze all bids and compare them against identified attributes, each with a predetermined value. Buyers can then select the supplier that provides the greatest value.

(916) 449-9531
www.bid.com
Price is tailored for each customer

IVAN Online

One Voice Technologies Inc. announced its voice-activated Internet service provider, IVAN (Intelligent Voice Animated Navigator) Online. Genuity Inc. has teamed with One Voice to provide the network infrastructure that will support the service, which is available on CD-ROM and by download from myivan.com. IVAN Online is being bundled with IVAN First Generation technology, which allows users to use their voice to search and surf the Internet.



(858) 552-4466
www.onevoicetech.com
$18 monthly

OfficePilot

ExecutiveWorks Worldwide Ltd. launched a new version of OfficePilot, a Web-based activities management system that provides a communications link and performance gauge between company managers and employees. It places a dash panel in front of management that allows it to monitor the pro-

continued on page 69 ➤

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- DSL - T1 - T3 Lines
- Networks
- Graphics

PENTIUM® III POWER SYSTEM

- Mid-Tower ATX w/250W BX PS
- ASUS P3V4X/CUV4X 133MHz Motherboard DMA66
- Intel Pentium® PIII 700 CPU
- Ball Bearing CPU Fan & Heatsink
- 128MB SDRAM PC133 Memory
- Teac 1.44MB Floppy Drive
- 30GB Ultra Hard Drive DMA ATA 100
- NVIDIA GEFORCE 2 MX 32MB AGP VIDEO CARD
- ASUS 50X IDE CD-ROM
- Sound Blaster PCI 128 Sound Card
- Lucent v.90 56K Fax/Modem/Voice
- Labtec Amplified Speakers
- Keytronics 104 Keyboard
- Logitech PS/2 Mouse w/Wheel
- 17" SVGA Monitor, .26 Digital 1600x1200

$999

INTEL PIII 733MHz (133MHz)	$1029
INTEL PIII 750MHz (100MHz)	$1039
INTEL PIII 800MHz (100MHz)	$1049
INTEL PIII 850MHz (100MHz)	$1099
INTEL PIII 866MHz (133MHz)	$1109
INTEL PIII 933MHz (133MHz)	$1209
INTEL PIII 1GHz (133MHz)	$1329

DUAL PENTIUM III BX POWER SERVER

- Full-Tower ATX w/300W PS
- ASUS P2B-D 440BX Motherboard
- Dual Processor on Board
- Adaptec 29160 Ultra 160 Controller
- Dual Pentium PIII 700MHz CPU
- Dual Ball Bearing CPU Fan & Heatsink
- 256MB SDRAM PC-133 Memory
- Teac 1.44MB Floppy Drive
- Dual 18GB Ultra 160, 10,000 RPM SCSI Hard Drive
- S3 Virge 4MB AGP
- Toshiba 40X SCSI CD-ROM
- Keytronics 104 Keyboard
- Logitech PS/2 Mouse
- 3COM 3C905C-TX 10/100 PCI Ethernet Card
- 15" SVGA Monitor, .28 Digital 128x1024

$2195

Dual Intel PIII 750MHz	$2225
Dual Intel PIII 800MHz	$2245

VALUE SYSTEM

- Mid Tower ATX CASE w/250W PS
- SIS 530 w/Video, Audio, Modem, LAN Motherboard
- AMD K6-2 500MHz MMX CPU
- Ball Bearing CPU Fan & Heat Sink
- 32MB SD-RAM PC-100 Memory
- TEAC 1.44MB Floppy Drive
- 10.2GB Ultra DMA IDE Hard Drive
- 50 X IDE CR-ROM
- Amplified Speakers
- Mitsumi 104 AS/2 Keyboard
- Logitech PS/2 Mouse w/Wheel
- 15" SVGA Digital Color Monitor, .28

$525

HOME MULTIMEDIA SYSTEM

- MID-TOWER ATX CASE W/250W PS
- MSI 6330 K7-T Socket VIA Motherboard
- AMD DURON - 600MHz CPU
- BALL BEARING CPU Fan & Heat Sink
- 64MB SDRAM PC-100 Memory
- TEAC 1.44MB Floppy Drive
- 15GB Ultra DMA ATA100 Hard Drive
- NVIDIA RIVA TNT2 8MB AGP Video Card
- 3D Sound Card OnBoard
- 50X IDE CD-ROM
- 56K V.90 Fax/Modem
- Amplified Speakers
- Logitech PS/2 Mouse w/Wheel
- Mitsumi 104 PS/2 Keyboard
- 15" SVGA Digital Monitor, .28

$629

K7 Duron 650MHz	$639
K7 Duron 700MHz	$649
K7 Duron 750MHz	$669
K7 Duron 800MHz	$689

AMD K7 POWER SYSTEM

- MID Tower ATX w/250W PS
- ASUS A7V ATHLON AGP Motherboard
- AMD K7-ATHLON Thunderbird 700MHz CPU
- Ballbearing CPU Fan and Heatsink
- 128MB SDRAM PC133 Memory
- Teac 1.44MB Floppy Drive
- 30GB Ultra DMA ATA100 Hard Drive
- NVIDIA GEFORCE 2 MX 32MB AGP VIDEO CARD
- ASUS 50X IDE CD ROM
- Sound Blaster PCI 128 Sound Card
- Lucent V.90 56K Fax/Modem/Voice
- Labtec Amplified Speakers
- Keytronics 104 PS/2 Keyboard
- Logitech PS/2 Mouse w/Wheel
- 17" Color Monitor, .26 Digital1600x1200

$999

K7-T Bird 750MHz	$1019
K7-T Bird 800MHz	$1039
K7-T Bird 850MHz	$1059
K7-T Bird 900MHz	$1079
K7-T Bird 950MHz	$1139
K7-T Bird 1GHz	$1159
K7-T Bird 1.1GHz	$1259

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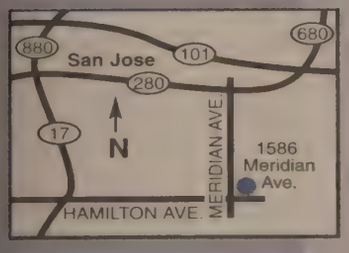

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New Products

continued from page 67

ductivity of the company. OfficePilot features ComPortal, through which office and remote employees can have direct communication regarding their common projects and tasks in real time.

(877) 877-7747
www.officepilot.com
Price varies; generally ranges from $12-35 per user

SpaceAgent

Insider Software Inc. announced its SpaceAgent 2.5, an improved Web site optimizer that can accelerate JavaScript, Active Server Page (ASP) and XML code. It also offers a free demo version that lets Web professionals optimize one page at a time to test how it speeds up their sites. After buying the full version, users can drop an entire folder onto the SpaceAgent icon and it will optimize every page and image contained within.

(800) 700-6340
www.insidersoftware.com/spaceagent/
$250

LAUNCHcast

LAUNCH Media Inc. announced its streaming service, LAUNCHcast for Macintosh users. As users access its music library, they rate artists in order to build a station that reflects their tastes. Over time, it learns and plays the songs they like and introduces them to new music they probably will like. Users can sample other DJ stations and also check out fan stations, which feature songs rated highly by fans of a specific artist. Currently, there are more than 500,000 member-created stations and more than 24,000 fan stations to choose from.

(310) 526-4300
www.launch.com

The XML Handbook

The XML Handbook, by Charles Goldfarb and Paul Prescod, is available in a revised third edition that totals more than 1,000 pages and covers the full breadth of XML applications, tools and technologies. There are 11 sections on applications that are illustrated with case studies and implementation tools. Also, there are 140 pages of tutorials on newly revised and finalized W3C specs like XSL, XSLT, XLink, Xpath, schemas and namespaces — plus a five-part, 110-page tutorial on the XML language itself.

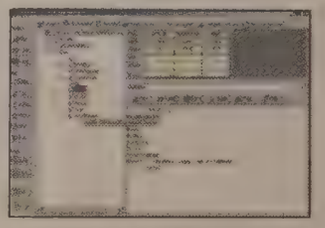
Single-copy orders: (800) 282-0693
Orders of 10 or more copies: (800) 382-3419
www.phptr.com
Price: $50

NetToll

Enition Inc. announced NetToll, which transparently enables the Internet Protocol with payment and valuation characteristics. Through NetToll, any protocol that is based on IP can be "valuation-enabled" seamlessly for e-business, including: HTTP, FTP, WAP, RTP, UDP and Voice over IP (VOIP). While geared towards business-to-business customers, all user transactions are fundamentally secure, as no credit card numbers, personal data or bank information are exchanged, the company says.

(408) 216 4768
www.enition.com
Price to be determined

DB to HTML Express 1.4



XlineSoft released DB to HTML Express 1.4 for Windows 95/98/NT/2000, a program that lets users convert all major databases to HTML documents. It supports standard databases, such as SQL or Oracle, as well as any ODBC database. It will also utilize a database's graphic image files. DB to HTML Express furnishes a tabbed interface, by which you can generate HTML documents following a few steps. All editing work, including HTML is visual, so the program can even write the script for you.

www.xlinesoft.com
$50

Timesolv

Elite.com Inc. announced its latest version of Timesolv, a Web-based time and billing application. This version contains more than 30 enhanced features and is free to all current subscribers. It provides enhancements in four key areas: flexible invoice formats, project-based permissions, enhanced reporting and Web-based bill presentation. The application is available from any Web browser, as well as by wireless Palm Web connections. Offline time entry is also offered for Palm and Windows-based devices.

(323) 642-5200
www.elite.com
$10/month per user

SurfSecret Deluxe 3.2

SurfSecret Software released SurfSecret 3.2, a privacy tool that will cover your tracks so that nobody will know where you've browsed. As you surf the Web, browsers create cache files and store information on your hard disk, creating a trail that can be easily read. SurfSecret is designed to periodically destroy this trail. A thorough instant-messaging cleaner has been added to the portfolio of privacy tools.

(212) 206-1092
www.surfsecret.com
$30 for Deluxe, $20 for LITE versions M

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Magic Personal Account

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- 5 Free E-mail accounts
- Free 5 MB of personal webspace
- Static IP address available
- Free Equipment and activation
- NO CONTRACT (cancel anytime)
- NO SETUP FEE

$39.95/MONTH

Magic Business Account

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- 50 MB of Webspace
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- CGI, PERL, ASP, Java, and Flash enabled
- Unlimited Internet Access
- Local and National access numbers
- 56K V.90 Dial-up Access
- NO SETUP FEE

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SFC System #1

- Main Board for Pentium & AMD
- 64 MB SDRAM Memory PC-100
- Teac 1.44 MB Floppy Drive
- 10.2 GB Ultra 66 Hard Drive
- 4MB Video Graphics (on board)
- 3D Stereo Sound (on board)
- 48X CD-ROM Drive
- 140 Watts Speaker
- 104 Key keyboard /Mouse
- Mini Tower Case w/P.S.
- Windows 98SE

$400 MSN REBATE

- CyrixM2 300/333 ..... $389/399
- AMD K6-2 3D 300/333 ..... $399/409
- Intel MMX 233 ..... $399
- Asus w/8MB Video Mainboard for:
- AMD K6-2 3D 450/500 ..... $479/489
- AMD K6-2 3D 533/550 ..... $499/509
- Upgrade CDROM to 8432CDRW ..... Add $99

SFC System #2

- Intel 810 Chipset Mainboard
- 64 MB SDRAM Memory PC-100
- Teac 1.44 MB Floppy Drive
- 20GB Ultra 66 Hard Drive
- Intel i810 Fast Video (8M Performance)
- 3D Stereo Sound
- 48X CD-ROM Drive
- 140 Watts Speaker
- 104 Key keyboard /Mouse
- Mini Tower Case w/P.S.
- Windows 98SE

$400 MSN REBATE

- Intel PIII 500/550 ..... $579/589
- Intel PIII 600/650 ..... $599/609
- Intel PIII 700/750 ..... $619/649
- Intel PIII 800/850 ..... $659/709
- Celeron 500/533 ..... $509/519
- Celeron 566/600 ..... $519/529
- Celeron 633/667 ..... $539/549
- Celeron 700/733 ..... $559/589
- Upgrade CDROM to DVD ..... Add $79
- Upgrade CDROM to 8432CDRW ..... Add $99

SFC System #3

- Abit/Asus/Fic/Intel/Tyan Mainboard
- 128 MB SDRAM Memory PC-100/133
- Teac 1.44 MB Floppy Drive
- 20.4 GB Ultra 66 Hard Drive
- ATI 2000 32M AGP w/Hardware DVD
- Yamaha PCI 3D Stereo Sound
- 52X CD-ROM Drive
- 140 Watts Amplified Speaker
- 56K v.90 Voice/Fax Modem
- 104 Keys Keyboard /Mouse
- ATX Med Tower Case w/P.S.
- Windows 98SE/ME

$400 MSN REBATE

- Intel PIII 533/550/600 ....$709/719/729
- Intel PIII 650/667/700 ....$739/739/749
- Intel PIII 733/750/800 ....$779/789/799
- Intel PIII 850/866/933 ....$829/839/949
- Intel PIII 1G $1079
- Celeron 500/533/566 ....$649/659/669
- Celeron 600/633/667 ....$679/689/699
- Celeron 700/733 ..... $709/729
- Upgrade CDROM to DVD .....Add $79
- Upgrade CDROM to 8432CDRW ..... Add$99
- Upgrade Mainboard to Asus P3V4X/CUSL2 ..... Add$25/39
- Upgrade Mainboard to Abit SE6 ..... Add $39

SFC System #4

- FIC/Tyan Mainboard for AMD K7
- ATX Med Tower Case w/300W P.S.
- Dual CPU Cooling Fan and HeatSink
- 128 MB SDRAM Memory PC-100
- Teac 1.44 MB Floppy Drive
- 20.4 GB ATA66 Hard Drive
- ATI 2000 32MB AGP w/Hardware DVD
- Yamaha 64 Wavetable 3D Sound
- 140 Watts Amplified Speaker
- 52x CDROM Drive
- 56K v.90 Voice/Fax Modem
- 104 Key keyboard /Mouse
- Windows 98SE

$400 MSN REBATE

Athlon Slot A
- AMD K7 500/650/700 ..... $699/709/729
- AMD K7 750/800/850 ..... $739/789/799
- AMD K7 900/950/1G $879/899/999

T-Bird Socket A
- AMD K7 650/700/750 ..... $709/739/749
- AMD K7 800/850/900 ..... $779/799/809
- AMD K7 950/1G/1.1G $879/899/999

Duron Socket A
- AMD K7 650/700 ..... $689/709
- AMD K7 750/800 ..... $729/749

SFC System #5

BOOK PC for PPGA $199
- ATX Slim Case (12"x11"x4")
- Intel i810 Chipset Mainboard
- 1.44MB FD/52X CDROM
- i810 Fast Video (8MB Performance)
- 10/100 Mbps Fast Network Card
- 56K V.90 Fax Modem w/Voice
- 3D Stereo Sound
- 120W Stereo Speakers
- 104 PS/2 Keyboard/PS/2 Mouse

SFC System #6

BOOK PC (UP TO 933MHZ) $249
- Beige Color
- ATX Slim Case (12"x11"x4")
- Intel i810E-133 Chipset Mainboard
- 1.44MB FD/52X CDROM
- i810E Fast Video (Up to 1600x1200)
- 10/100 Mbps Fast Network Card
- 56K V.90 Fax Modem w/Voice
- 3D 24Bit Stereo Sound
- 120W Stereo Speakers
- Keyboard & Mouse

EXPLORA AMD K6-2

EXPLORA AMD K6-2 $399
- AMD K6-2 450MHz CPU
- Via MVP4 Chipset Main Board
- 32 MB SDRAM Memory PC-100
- 1.44FD/8.4 GB Ultra 66 Hard Drive
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- 3D Stereo Sound/ Speaker
- 40X CD-ROM Drive
- 56K Fax/modem
- 104 Key keyboard /Mouse
- Mini Tower Case w/P.S.
- Windows 98SE/Anti-Virus/Winfax

EXPLORA PII/PIII

EXPLORA PII/PIII $499
- Intel Celeron 566MHz CPU
- Intel 810 Chipset Main Board
- 64 MB SDRAM Memory PC-100
- 1.44FD/ 10.2 GB Ultra 66 Hard Drive
- Intel 3D AGP Video
- 3D Stereo Sound/ Speaker
- 50X CD-ROM Drive
- 56K Fax/modem
- 104 Key keyboard /Mouse
- Mini Tower Case w/P.S.
- Windows 98ME/Anti-Virus/Winfax

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- DataBook 5/8G USB,Pcmcia or Parallel(3Y) $399/699
- Seagate 8GB SCSI TR4 Int./Ext. $299/399
- Seagate 8GB IDE TR4 Int. $229
- Iomega 100MB Parallel/SCSI $109/139
- Iomega Jaz 2GB Int. SCSI $299
- Iomega 250MB Int./Ext $88/145
- OnStream sc50 50GB Int. SCSI ..... NEW $599
- ORB 2.2GB IDE w/Disk & Software(12.2MB/sec) $179
- Zip drive Int 100MB IDE/SCSI $48/89
- Zip Cartridge 100/250 MB $9/19

CAMERA
- USB Internet Camera Kit $39

CASE
- AT Desktop/Mini/Mid/Full 250w $29/19/42/58
- ATX Desktop/Mini/Mid/Full 250w UL $69/47/55/79
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CD-ROM IDE
- 44/48/52x $32/35/40
- 48x Mitsumi/Samsung/Sony/Toshiba $39/39/39/45
- 52x Creative Lab $44

CD-ROM SCSI
- 40X NEC/Teac/Toshiba $69

CD-ROM REWRITABLE
- Acer 8x4x32 Int. IDE White Box $129
- Acer 10x4x32 Int IDE Retail $155
- HP 8x4x32 Int. IDE/SCSI Retail $179/249
- HP 10x4x32 Int. IDE/SCSI Retail $209/ask
- HP 12x8x32 Int. IDE/SCSI Retail $269/ask
- Panasonic 8432 IDE Int. $135
- Plextor 8x4x32/12x10x32 IDE Int. Retail $169/249
- Ricoh 4xDVD 6x4x24 CDRW Retail $239
- Ricoh 8xDVD 12x10x32 CDRW Retail $289
- Toshiba 4.8xDVD 4x4x24 CDRW Retail $209
- Sony 8x4x32 Int. Retail IDE/SCSI $159/ask
- Sony 10x4x32/12x8x32 Int. IDE Retail $199/259
- Teac 12x10x32 Int. IDE Retail $219
- Blank CDR Media 10/100 Pack 74 min $5/40
- Blank CDR Media 10/100 Pack 80 min $6/50
- Rewritable CDR Media 12X $2
- Software for CD Writer $10-29

CONTROLLER
- Adaptec 2940U/UW Pro/U2W $143/179/199
- Adaptec 29160 Ultra 160 ..... $194
- Printer port Standard/ECP&EPP $11/17
- Printer port Enhanced ECP&EPP PCI $28
- Tekram DC-315U/395U SCSI-2 PCI $26/49
- Tekram DC-390F UW/U2W SCSI-3 PCI $69/175
- Tekram DC-390 U2B SCSI-3 PCI $115
- Ultra ATA 66/100 PCI $35/47
- USB PCI CARD $28
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- K7 Slot A 800/850/900/950/1G $148/153/191/216/272
- T-Bird SocketA 650/700/750/800 ..... $72/110/117/148
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- Cyrix 300/333/366/400/433/500/533Mhz $33/36/47/52/68/70/78
- P-233MMX Mhz $43
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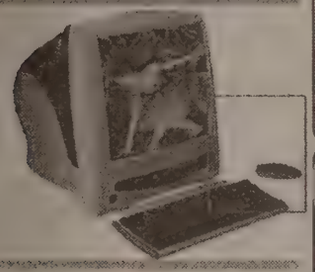

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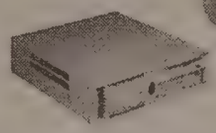

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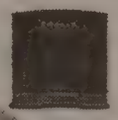

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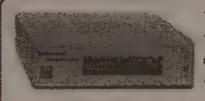

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Mix And Match: Different Operating Systems Can Coexist On A Server

By Dave Morton

It is often somewhat stressful and taxing when one is called in to deal with an established network. One would hope that, with the ready availability of online documentation, and more or less expert answers from support forums and newsgroups, most network architectures would be fundamentally sound.

Sadly this is not always true; indeed, it is not the case in the majority of networks we take on. Even if the building is properly and safely cabled (and there seem to be far too many installations that contravene not only good network wiring practice, but also workplace safety laws), we see a remarkable number of simple mistakes.

One common error is the use of inappropriate protocols, or more commonly, far too many protocols, on what ought to be simple Windows networks. We see networks with properly specified servers, and yet all of the client machines have file sharing turned on and the users are storing files in apparently random places on these client network shares instead of on the server.

Networking

These mistakes are easy to rectify, of course; one of the least intellectually taxing and yet most satisfying and productive jobs is simplifying a thoughtlessly configured Windows network.

Out go all the redundant protocols, off goes the file sharing on the client machines, the company data is moved into a logical structure on the server, and printers are transferred to stand-alone print servers. In the space of a few hours, the client has a faster, more reliable network, the data is now being backed up reliably, printers don't vanish off the network and everyone's more productive.

However, a strange and curiously common problem is that of non-Windows machines, usually Apple Macintoshes, in businesses with Windows-based networks. Despite readily available documentation, it is astonishingly common to find either a single Macintosh machine in splendid isolation from the rest of the network with files being transferred by floppy or Zip disk, or a completely separate Mac network.

In the most bizarre example we've seen recently, the Macintosh network had its own hub and Category 5 cabling, despite the fact that the building had plenty of spare hub ports and was flood-wired with Cat5e cabling.

This was a fairly extreme case, and had probably come about because the Mac and Windows machines had been installed — and were supported — by two different consulting businesses.

Nevertheless, this network design only succeeded in keeping separate two parts of a business that needed to talk to each other and exchange huge files and copious amounts of e-mail. In fact, the networks were so thoroughly separate that each had its own ISDN lines. If users needed to transfer files larger than a floppy can hold, they had to e-mail them externally. This clearly demonstrates a spectacular lack of understanding on someone's part.

The truth is, of course, that you can put Macintosh machines on Windows networks, Windows machines on Macintosh networks, and can make almost any combination of Macintosh, Windows, NetWare, Linux, UNIX or almost any other operating system you care to mention coexist in a productive way if you know what you're doing, or where to look for the information.

At present, the most common requirement we see is the need to add MacOS machines to Windows networks. If this is a Windows NT Server-based network using either NT4 Server or Windows 2000 Server, this is a relatively straightforward process.

With NT4 Server, for example, all you need to do is add "Services for Macintosh" in the "Services" part of the network control panel applet. After answering a few questions, such as the name of the AppleTalk Zone, which can be left blank, and a restart of the machine, you will be able to see the NT4 Server in the Chooser of your Macintosh client machines.

You will then need to create some Macintosh volumes (the equivalent of Windows shares) so that the Macs can see some file space. However, this is a relatively straightforward process, as the NT4's file manager has now gained a top-level menu entry called "MacFile," under which all

continued on next page ➤

Mix And Match Operating Systems

continued from previous page

these options appear. Once the volumes are set up, you can arrange for them to mount on the Mac at startup — with a prompt for a password, if required.

You will find some limitations with NT4 Server sharing files for Macs in this way. For example, the Macs can only connect to the server using the AppleTalk protocol, which can cause problems if you're trying to access it via a router. Although MacOS has supported file sharing using the TCP/IP protocol for some time now, NT4 Server cannot do this. In addition, your MacOS machines will see the volumes you create as being 2GB even if the real size of the volume is much larger. Most of the time this doesn't matter, as the file sharing will work transparently. The only oddity your users might notice is that the amount of free space on the Mac volume is never more than 2GB.

In other words, if you have a 15GB disk on the server with just 300MB of data on it, it will be seen on a MacOS machine as having 2GB free. You can then copy 1.9 GB to it, and afterward, it will still show 2GB free. However, while this is normally just a mildly irritating quirk, it can be a considerable inconvenience if you need to regularly move large volumes of data from the MacOS machines to an NT4 Server, since MacOS checks that there's enough free space before it will copy.

If you try to copy more than 2GB at a time, or if you have one copy running that isn't complete and try to copy another block of data that will exceed 2GB for the two copies, MacOS will tell you there isn't enough room, even though you know there's plenty.

Both of these problems — the requirement for AppleTalk as a network protocol and the misreporting of volume sizes — are addressed in Windows 2000 Server, which will share files to MacOS machines over TCP/IP, and which correctly reports volume sizes.

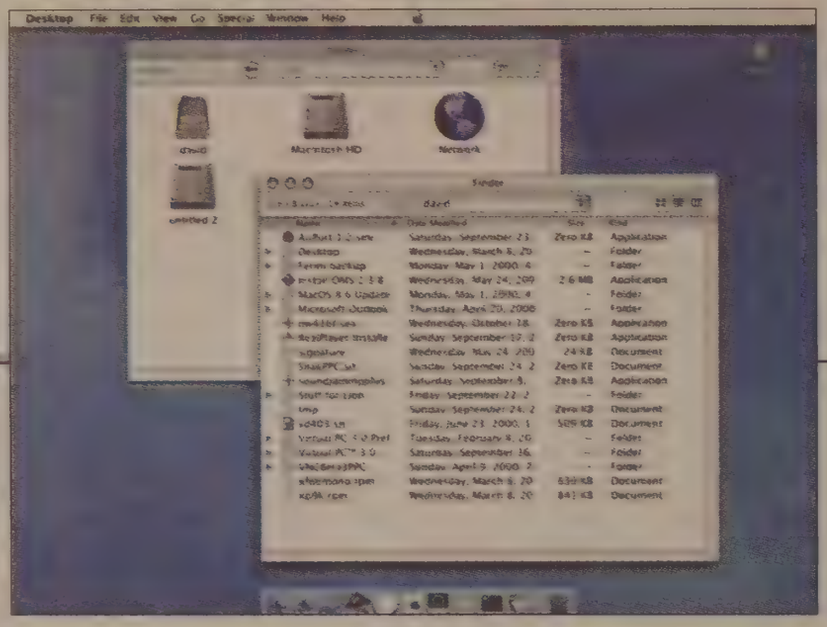
If your NT4 Server machine provides Internet access via a proxy server such as Microsoft's Proxy Server 2, then the MacOS machines can use the same facility as long as you configure the Mac browser to look at the proxy address. If you have access control enabled on Microsoft Proxy, your users will be asked to enter their password again when they start their Web browser and try to access the Internet; unlike a Windows client, the network logon is not re-used for the proxy authentication.

If the NT4 Server is running Exchange as the corporate e-mail program, then your MacOS machines can also connect, but here you have a number of choices. Microsoft does offer an Exchange Client version of Outlook for MacOS, but many people find this very limiting.

The current release is really just an e-mail client with little further utility. You can see calendars and contacts folders on the Exchange Server, but they're not really presented in a user-friendly fashion. Some users also find that the MacOS Outlook Exchange Client isn't sufficiently stable, although our experience with the current release is that if all you need is the e-mail functionality, its performance is more than adequate.

There are two alternatives to using the MacOS Exchange Client to talk to Exchange Server. The first is appropriate if all your users need is an e-mail client with a more familiar interface than the MacOS Exchange Client offers. In this case, you can use any Mac-based e-mail client and treat the Exchange Server as a simple SMTP/POP3 server.

You will need do some minor reconfiguring of the Exchange Server to make this work, principally changing the settings for SMTP (Simple Mail Transfer Protocol) routing in Exchange Administrator, but once this is done, the Macs will be able to e-mail from your users' preferred MacOS client.



Mac OSX Desktop

However, many users want Exchange Server functionality that's rather closer to that offered by MS Outlook 98 or 2000 on Windows. If this is the case, then one option is to install the "Outlook Web Access" part of Exchange 5.5. This provides access to the Exchange Server in a way that looks very similar to running Outlook on a Windows machine, but needs only a Web browser running on the client.

Even with a system that has a reputation (largely unwarranted, but a strong reputation nevertheless) for incompatibility such as Exchange and Microsoft Proxy running on NT4 Server, MacOS machines can be integrated sufficiently seamlessly to meet the needs of most users.

Some of the same techniques apply to UNIX or Linux as desktop or client OS. You can access NT4 or Windows 2000 Server shares using the SMB mount command, and any UNIX or Linux e-mail client can talk to Exchange Server

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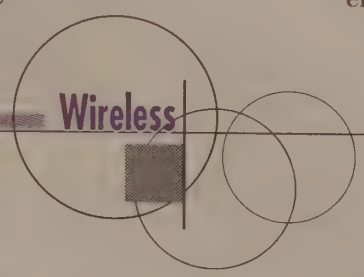
As Broadband Gains Acceptance, It Gathers Standards, Too

By Teri Robinson

If you ask decision-makers within an enterprise just what is holding them back from selecting a fixed wireless technology, at the top of the list would be lack of standards. It is the age-old story in wireless: The prohibitive factor is the proprietary nature of existing systems, which impose on companies a certain inflexibility and keep prices higher than is acceptable to most buyers.

"In the nonline-of-sight [market], it is important in point-to-multipoint [communications] to have a standard that drives costs down," says Andy Fuertes, director of broadband electronics at Allied Business Intelligence (ABI) in Oyster Bay, NY.

To propel the industry forward, several groups of vendors and players have formed to come up with a standard that just might get the fixed wireless market over the proprietary hump. Among the forums and consortia gaining steam are the Broadband Wireless Internet Forum (BWIF), a group favored by Cisco Systems Inc. of San Jose, CA that wants to see the standard built on Vector Orthogonal Frequency Division Multiplexing (VOFDM), and the OFDM Forum spearheaded by Wi-LAN Inc. of Calgary, Canada, which supports Wideband OFDM (WOFDM). Nortel has led the march to standards as a proponent of the WDSL Forum.



As the airwaves become jam-packed with traffic from various entities, it is increasingly important that the industry adopt a standard that will use the radio frequency more efficiently, according to Wi-LAN and other vendors.

Most of the standards initiatives are based on OFDM, which is the basis for the high-speed wireless LAN standard, IEEE 802.11a. OFDM has already been used in various forms of digital communications. But small differences in the technical approaches can spell large obstacles in the industry's attempt to standardize fixed broadband wireless communications.

Analysts like Fuertes view the emerging efforts toward developing a standard as a mixed blessing. "They're intended to support a speedy solution," he says.

Jay Patel, senior analyst in the mobile practice at the Yankee Group in Boston, agrees. "Generally a consortium is a positive step. It sets the stage for a standard, not two or three formats."

On the other hand, it would be naive to think that vendors don't have their own agendas. "They [represent] groups of companies instead of the IEEE, which is an independent standards body," says Fuertes. Some companies could choose to dig in their heels, pushing a semi-proprietary technology as the standard and the ensuing bickering could conceivably prolong the process.

But proponents like Cisco believe a standard is long overdue and there's a lot at stake, since a potentially huge user base is in the offing. According to ABI, there should be about 9.4 million wireless broadband subscribers by 2005, up from the approximately 200,000 users today.

A certain proprietary bent was understandable in the early days of wireless, when it was simply a tool of the tech junkie mobile user or in environments not conducive to wireline alternatives. But with market research firms like the Strategis Group predicting that fixed wireless will swell to a $16 billion market by 2004, development of a standard becomes more critical. And clearly, carriers are moving on with fixed wireless initiatives, standard or no standard. AT&T, for example, has already taken the wraps off of AT&T Digital Broadband, code name Project Angel, and is conducting trials with Motorola.

Verizon Communications Inc., which is still sorting out glitches and service issues carried over from its days as Bell Atlantic Wireless and GTE Wireless, has staked its immediate future on OFDM-ish technology being developed by Radix Technologies Inc. of Mountain View, CA (www.radixtek.com.)

IEEE, the official, supposedly nonpartisan standards body, struck out to forge a standard for

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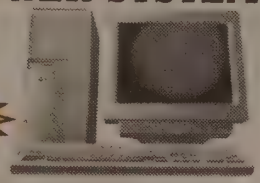

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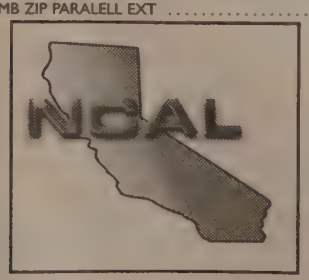

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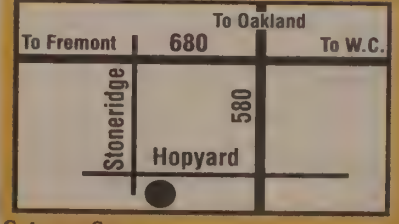

In Gateway Square

Broadband Gains Standards

continued from page 75

fixed wireless — dubbed the 802.16 Working Group on Wireless Access Standards. In a successful but elongated process, the organization had already developed the 802.11 standard for wireless LAN interoperability, opening the floodgates for products in that arena.

The IEEE created the 802.16 Working Group in March 1999 to standardize broadband wireless access.

Last year, the committee created a 802.16.3 task group charged with developing the air interface for the 2GHz to 11GHz range. But the process, which examines existing technology and products, then hammers out appropriate specifications, is intrinsically slow, with a meticulous review of technology, an everything-by-committee demeanor, and extended comment periods that often stretch out so long that a de facto standard steps up to the plate first.

While vendors can contribute heavily to standards development during the IEEE process by starting their own consortia, they're hoping to push a favored standard through more quickly. But Fuertes says there's value to different companies' participation rather than having the IEEE operate in a vacuum. "It brings up points that a standards body generally wouldn't look at," he says. "It forces [standards bearers] to look at a wider group of ideas."

And, says Patel, "it eliminates some confusion and offers the opportunity for companies to learn from each other."

Among the most innovative companies in the fixed wireless world has been Wi-LAN. An OFDM advocate for nearly a decade, it has pushed its WOFDM technology to the forefront through the OFDM Forum, founded by the Canadian company and Philips Semiconductor in late 1999.

The chairman and CEO of Wi-LAN, Hatime Zaghloul, had patented WOFDM in 1991, but determined that the fixed wireless marketplace wasn't sufficiently mature — in fact it was virtually nonexistent — to develop at that point. According to proponents, WOFDM is similar in nature to OFDM, but surpasses its performance and supports faster transmission at a longer range.

WOFDM is particularly strong in reducing multipath interference caused when a receiver picks up the original signal plus others caused by signals bouncing off objects such as buildings that stand between the transmitter and the receiver. It is a particularly thorny problem for fixed wireless systems, especially nonline-of-sight systems.

Wi-LAN's approach reduces or eliminates the distortions, in part because it supports forward error-correcting codes that maintain the integrity of data. WOFDM was also used for the IEEE 802.11 standard, making it of particular interest to the fixed wireless standards-makers.

Backed by Wi-LAN and Philips, the OFDM Forum's first meeting attracted 104 executives and managers from 60 companies, exceeding by a long shot the 25 companies that the founders expected. Charter members include Wi-LAN, Philips, Ericsson, Nokia and Sony Corp., and a bevy of others are principal, small business or academic members. Also adding some ballast to the OFDM Forum's initiative is the keen interest that Microsoft Corp. has expressed in the WOFDM technology because many believe that it is strong enough to drive the standard through.

Excitement over the company's technology sent its stock price on a wild ride from $5 to $94 per share before settling in near $12.70 at press time.

While the WOFDM technology is viewed as stellar by many in the analyst community because it reduces interference extremely well and Wi-LAN has been tinkering with it for about a decade, even advocates are the first to point out that the best technology doesn't always win. Remember the Betamax vs. VHS wars? While the former was superior, the latter won the popularity contest and became the de facto standard for videotape.

WOFDM is particularly strong in reducing multipath interference

Enter the Broadband Wireless Internet Forum. The OFDM Forum was created in part as an alternative to the VOFDM Consortium announced by Cisco in October 1999. The purpose of the consortium was, of course, to present VOFDM as the standard for fixed wireless, using spatial diversity in combination with OFDM to improve performance in view of multipath. While VOFDM has some appealing benefits, such as that it processes with scale and improves reception, it is a very complex technique.

Garnering support from the likes of Broadcom Corp., Irvine, CA; Samsung Electronics Co. Inc., Seoul, Korea; and Motorola Inc., Schaumberg, IL, VOFDM has a strong foundation. Early this year, though, the forum's mission was virtually morphed into the objectives of BWIF. Almost upon its conception, BWIF became a program of the IEEE Industry Standards and Technology Organization (IEEE-ISTO). In addition to Cisco, Broadcom and other original VOFDM Consortium members, BWIF has drawn support from Toshiba, Pace Micro Technology PLC of London, and a wide variety of companies needed to put together a complete fixed wireless program.

The companies have agreed to cross-license

continued on next page ➤

Broadband Gains Standards

continued from previous page

products to other members of the forum.

With or without an industry standard in place, vendors in each group are already working on fixed wireless products using whichever technology they support. For example, Cisco has devised its WT2700 Wireless Technology Suite for point-to-point systems around the VOFDM standard, followed closely by point-to-multipoint products. Broadcom, too, is using VOFDM in some integrated circuits.

Philips and Tele2 SA of Luxembourg have each announced products based on WOFDM. In fact, Tele2, a wireless carrier, has taken the wraps off a WOFDM-based 30Mbps access point dubbed I WiLL.

With big-name players aggressively exploiting the fixed wireless market, standards development should get a real boost. And Patel notes that there will be room for more than one standard, each aimed at a different segment of the marketplace — multichannel multipoint distribution service (MMDS) vs. local multipoint distribution service (LMDS), for example.

Current affiliations in the groups might not mean much in the future, since vendor alliances could shift over time. Microsoft, for instance, is well known for evaluating different technologies before settling on the one that it believes has the best shot at becoming a standard.

And while Cisco often enters new markets and emerges as the leader, the company's entry into fixed wireless has drawn the ire of some detractors who believe it is trying to force its will on the market. "There is definitely some strong resentment [with people] saying Cisco only wants a standard if it's theirs," says Fuertes.

Still, adding to the existing resentment, the ISTO-IETF affiliation with BWIF seemed a little too much like an endorsement to some. "The IEEE supported it, but not as an actual standard," rather as a legitimate attempt at a standard, says Fuertes. But "BWIF tried to position themselves" that way. The stance prompted an angry letter to the IEEE from members of competing groups and a hasty clarification that the committee supported various standards development efforts.

Of course, the nitpicking and sniping could be academic anyway because the standard will probably be based on whatever technology Sprint, the marketplace leader, selects. "In the U.S., where we have WorldCom and Sprint deciding [on technology], the role of the standards body is not important," says Fuertes. "Sprint is going to choose whatever works best. Whatever Sprint chooses is going to be the market standard."

What's clear is that wireless carriers like Sprint don't have time to wade through a prolonged standards process. "They've invested a lot in it and need it to evolve in the next year. They can't afford to sit around and wait," says Fuertes. And, nor are they. "They're already rolling out their system." M

Teri Robinson is a freelance writer based in New York. She previously was editor of *Financial Technology Review* and has written for *Computerworld, Datamation, Information Week, Internet Week, LAN Times, Digital News & Review, Telephony* and *DW, the Data Warehousing Magazine*. She can be reached at teri8994@aol.com.

Mix And Match Operating Systems

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via SMTP and POP3 (Post Office Protocol). If you need more than simple e-mail functionality from Exchange, then UNIX or Linux browsers can also collaborate with the Outlook Web Access service.

Having mentioned Linux as a client operating system accessing the resources of a Windows NT Server, it would be inappropriate not to mention the facilities offered by UNIX or Linux as cross-platform server operating systems.

The ability of Linux to act as a file server for Windows machines — using "SAMBA" — is now fairly well known, and many organizations are now adding Linux-based file and application servers to NT domains in a relatively seamless arrangement.

However, those same Linux servers can also share files to MacOS machines using Netatalk. This is simple to set up, and unlike NT4 Server, a Linux machine running Netatalk will share over TCP/IP, so you don't need to route another protocol, and MacOS will see the volume sizes correctly. In fact, our experience with comparing Services for Macintosh on NT4, and Netatalk on Linux, suggest that Linux is a more flexible and reliable file server than NT4.

Comparing Linux and Windows 2000, the result is more evenly matched. Indeed if the MacOS client machines are running Mac OSX Public Beta, Windows 2000 is significantly ahead. Despite Apple's attempt to position OSX as a well-equipped networking OS, its ability to talk to servers running operating systems other than Mac OSX or MacOS 9.x is severely limited.

OSX Public Beta can see directory listings on our Linux machines running Netatalk, but can't reliably access the files stored there. However, it behaves itself rather better when pointed at a Windows 2000 share.

In fact, on our test network, the only third-party server operating system we've been able to get to work reliably with Mac OSX, is Windows 2000. While one appreciates that this kind of problem is just what beta releases are intended to discover, it's a surprise to discover it in a product that has been so widely described as "ready for prime time."

Within some IT regimes, there's a policy of avoiding cross-platform issues altogether, and forcing the user onto the client OS of choice. In many cases, this is brought about by prejudice and a lack of understanding of just how relatively easy it can be to mix and match MacOS and Windows machines on any network that is based on a modern server OS.

Those of you with NetWare servers and MacOS machines will have noticed that I've steered clear of mentioning that combination here. However, this is not because it can't be done, but the number of ways of connecting MacOS to the different generations of NetWare is considerable and we'll be returning to that subject in the near future. M

Dave Morton spent 13 years working as a research scientist with the British Broadcasting Corp. He now divides his time between writing and running Open Consulting Ltd., an IT consultancy based in London. Morton has written for *PC Network Advisor* and *PC Support Advisor*, as well as a number of U.K.-based magazines. He can be reached at dmorton@journalist.co.uk.

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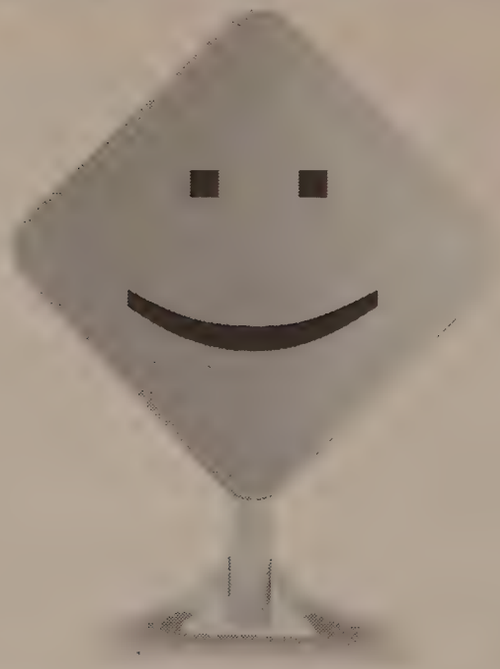

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IT MIGHT BE TIME FOR A HIGH-TECH VOTING SYSTEM

By Lawrence J. Magid

Hopefully you know something I don't. Since you're reading this article in January, you should know the name of the next president of the United States. I'm writing in mid-November — 10 days after the election — and I don't have a clue whether we'll ultimately give the nod to Al Bore or George Gush. All I know for sure is that the next president will come from a state that begins with "Te," unless Pat Buchanan and Ralph Nader wind up creating a coalition government.

One thing I do know is that Election 2000 was a mess. Florida was obviously the worst situation, but there were numerous "irregularities" in several states. Regardless of whom we want as our leader, one thing Americans do agree on is that we want a fair and democratic process. And, since it happens to be the dawn of the 21st century, it might be a good idea to use some of our technology to make that happen.

Systems

Magid At Large

In January 2000, California Secretary of State Bill Jones and the California Internet Voting Task Force issued a report on the feasibility of Internet voting. The task force concluded, "The implementation of Internet voting would allow increased access to the voting process for millions of potential voters who do not regularly participate in our elections."

However, the task force added a major caveat, "The possibility of 'virus' and 'Trojan horse' software attacks on home and office computers used for voting is very real and, although they are preventable, could result in a number of problems ranging from a denial of service to the submission of electronically altered ballots."

Imagine that — a flaw in the voting system. That certainly can't happen now with our far less automated systems, can it? Well, as Americans witnessed ad infinitum during our postelection recount period, there definitely are major flaws with the way we now conduct elections. In fact, we have the worst of both worlds.

In the old days, we all voted with pen on paper and, as tedious as it was, the tallying process was pretty unambiguous. Then someone came up with voting machines that were relatively easy to use and provided reliable counts. Later, many counties moved to the less expensive punch-card ballot system, which — as we saw in Florida — is riddled with flaws.

In fact, thanks to the Florida vote, we've all learned the definition of "chad," not to mention hanging chad, dimpled chad and my favorite, pregnant chad. It turns out, by the way, that chad is listed on dictionary.com but it's not included in Microsoft Word's spell checker. But I bet it will be in the next revision.

It turns out that the infamous butterfly ballot from Palm Beach, FL, was designed on — you guessed it — a computer. The person who developed the ballot used a 1988 MS-DOS version of a program called Ballot Printing System (BPS). It is essentially a database program that creates an automatic layout depending on the ballot positions entered by the user, according to Paul Nolte, president of Elections Resources Corp. (www.ballots.com), the Little Rock, AR-based company that publishes the software.

Unlike the Windows version of the program, the DOS version used in Palm Beach doesn't have a "what you see is what you get" visual interface, so whoever set up the ballot wasn't able to see how it would look until it was printed. Of course, it can be adjusted after printing a draft, but unlike a desktop publishing program, you don't adjust the ballot by dragging columns into position. Instead, you have to adjust the voting position of whichever candidate you want to move.

To get the BPS to create a ballot that spans two opposing pages, according to Nolte, the user would have had to use the software as if he or she were creating ballots for two separate contests. "In our system it's treated as two offices," Nolte said in an interview. "The only way to produce this type of ballot is to override the system. Candidates on the left part are one contest and those on the right part another contest."

So, if you look at the ballot, you'll see that each side is perfectly clear. The problem comes when you juxtapose the two pages against each

continued on page 83 ➤

SPECTRUM PERIPHERALS

SP SYSTEM 1

- Motherboard for PIII Processor
- Mini-Med Tower Case 250W
- 32MB 168pin PC100 SDRAM
- 1.44MB Floppy Drive
- 20GB Ultra66 Hard Drive
- 8MB Integrated Video Graphic
- 50x CDROM Drive
- 56K V.90 Int. Modem Voice
- 16 Bit 3D Stereo Sound
- 120W Stereo Speakers
- 104/105 Keyboard & Mouse

Intel Celeron:	Intel PIII 800 ..... $530
Intel Celeron 433 ..... $385	Intel PIII 850 ..... $574
Intel Celeron 600 ..... $406	**Intel PIII Coppermine (133MHz):**
Intel Celeron 667 ..... $411	Intel PIII 600EB $471
Intel Celeron 700 ..... $421	Intel PIII 667 ..... $486
Intel Celeron 733 ..... $446	Intel PIII 733 ..... $516
Intel PIII Coppermine (100MHz):	Intel PIII 800EB $519
Intel PIII 650 ..... $479	Intel PIII 866 ..... $569
Intel PIII 700 ..... $497	Intel PIII 933 ..... $676
Intel PIII 750 ..... $518	Intel PIII 1G $818

SP SYSTEM 2

- Asus Motherboard 133MHz
- ATX Mini-Med Tower Case
- 64MB PC133 SDRAM
- 16MB AGP Video Card
- 1.44MB Floppy Drive
- WD 20GB Ultra 100 7200RPM Hard Drive
- Sony 48x CDROM Drive
- 16 Bit PCI Stereo Sound Card
- 56K V.90 PCI Modem w/ Voice
- 120W Stereo Speakers
- Viewsonic E771 17" SVGA Monitor
- Keytronic PS/2 Keyboard
- Logitech PS/2 Mouse

Intel PIII Coppermine (100MHz):	**Intel PIII Coppermine (133MHz):**
Intel PIII 650 ..... $785	Intel PIII 600EB $777
Intel PIII 700 ..... $803	Intel PIII 667 ..... $792
Intel PIII 750 ..... $824	Intel PIII 733 ..... $822
Intel PIII 800 ..... $836	Intel PIII 800 ..... $825
Intel PIII 850 ..... $880	Intel PIII 866 ..... $875
	Intel PIII 933 ..... $982
	Intel PIII 1G $1,124

SP SYSTEM 3

- Iwill Motherboard w/ Intel 840 Chipset (133Mhz for PIII Xeon Processor)
- WTX Enhanced Server Case 330W PS
- 128MB PC800 RAMBUS Memory w/ ECC
- 16MB AGP Video Graphic Card
- 1.44MB Floppy Drive
- Toshiba 48x CDROM Drive
- 20GB Ultra66 7200RPM Hard Drive
- Sound Blaster 16 Bit PCI Sound Card
- 10/100 Network Adaptor
- 120W Stereo Speakers
- Keytronic PS/2 Keyboard
- Microsoft PS/2 Mouse

Coppermine Xeon (133MHz):

Intel PIII Xeon 600 (Single)	$1,611
Intel PIII Xeon 600 (Dual)	$1,811
Intel PIII Xeon 667 (Single)	$1,911
Intel PIII Xeon 667 (Dual)	$2,111

SP SYSTEM 4

- Asus A7V Motherboard
- Antec Mini Tower Case w/250W PS
- CPU Cooling Fan w/ Heat Sink
- 128MB 168 pins PC 100Mhz Memory
- ATI Xpert 2000 32MB AGP Video
- 1.44MB Floppy Drive
- 20GB Ultra66 IDE Hard Drive
- 56K V.90 PCI Modem w/ Voice
- 16 Bit Stereo Sound Card
- Sony 48x IDE CDROM
- 120W Stereo Speakers
- 104/105 PS2 Keyboard
- PS/2 Mouse

Socket A	Athlon Thunderbird	Duron Socket A
AMD K7 650		.$595
AMD K7 700	.$644	.$607
AMD K7 750	.$657	.$620
AMD K7 800	.$682	.$640
AMD K7 850	.$705	
AMD K7 900	.$720	
AMD K7 950	.$775	
AMD K7 1000	.$803	
AMD K7 1100	.$886	

SP SYSTEM 5

- Asus or Intel Motherboard w/ i820 Chipset
- ATX Mini-Med Tower Case
- 128MB Rambus Memory
- Elsa geforce 256 32MB AGP Video Card
- 1.44MB Floppy Drive
- IBM 30GB Ultra 100 7200RPM Hard Drive
- Creative Labs 12x DVD Drive
- Sound Blaster Live! 256 PCI Sound Card
- Diamond Supra Max 56K V.90 PCI Modem
- ACS 33 Speakers w/ Subwoofer
- Viewsonic E773 17" SVGA Monitor 0.25dp
- Keytronic PS/2 Keyboard
- Logitech PS/2 Mouse

Intel PIII Coppermine: (100MHz)	
Intel PIII 650	$1,168
Intel PIII 700	$1,186
Intel PIII 750	$1,207
Intel PIII 800	$1,219
Intel PIII 850	$1,263
Intel PIII Coppermine: (133MHz)	
Intel PIII 600EB	$1,160
Intel PIII 667	$1,175
Intel PIII 733	$1,205
Intel PIII 800EB	$1,208
Intel PIII 866	$1,258
Intel PIII 933	$1,365
Intel PIII 1G	$1,507

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Matsushita/Panasonic	$84

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Fujitsu 10.2GB 5400/66	$100
Fujitsu 10.2GB 7200/66	$102
Fujitsu 20GB 7200/66	$119
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IBM 20GB 7200/100	$145
IBM 30GB 7200/100	$145
IBM 45GB 7200/100	$172
IBM 60GB 7200/100	$280
Maxtor 20GB 5400/66	$115
Maxtor 20GB 7200/100	$127
Maxtor 40GB 5400/66	$146
Maxtor 81GB 5400/66	$271
WD 10GB 5400/100	$101
WD 15GB 5400/66	$107
WD 20GB 5400/66	$119
WD 20GB 7200/100	$119
WD 30GB 5400/66	$120
WD 30GB 7200/100	$141

LAPTOP Hard Drive 2-1/2" 9.5MM

IBM 12GB (DARA212000)	$169
IBM 20GB (DJSA220)	$223
Toshiba 10GB (MK1016GAP)	$145
Toshiba 20GB (MK2016GAP)	$223

SCSI Int.

IBM 36.0GB U160 10K	$585
Quantum 18.1GB U160 7200	$270
Quantum 4.5GB SCA 5400	$99
Seagate Cheetah 18.1GB U160 10K	$355

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50x Delta	$33
50x Afreey	$33
48X Sony (Beige)	$39
48X Sony (Black)	$75
48X Toshiba	$66
48x Teac (Black)	$65
52x Creative Labs	$39
52x Creative Labs Infra Red w/Remote	$59

SCSI Internal

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40x Toshiba Black	$89
40x NEC	$69

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HP 9600s 12x8x32 SCSI	$305
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Panasonic 8x20 SCSI	$117
Panasonic 8x4x32 IDE	$130
Plextor 12x10x32 IDE	$130
Plextor 12x4x24 SCSI	$334
Ricoh 8x8x32 IDE	$125
Ricoh 12x10x32 IDE	$186
Sony 8x4x32 IDE	$123
Teac 4x4x32 IDE	$125
Teac 8x8x32 IDE	$132
Yamaha 16x10x40 IDE	$266
Yamaha 8x4x24 IDE	$149
Yamaha 8x8x24 SCSI	$162

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8x Hitachi IDE	$69
8x Panasonic IDE	$70
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10x Toshiba SCSI	$149
12x Asus IDE	$110
12x Creative Labs IDE	$79
12x Hitachi IDE	$81
12x Toshiba (Beige) IDE	$96
12x Toshiba (Black) IDE	$136
16x Pioneer Slot IDE	$110
16x Pioneer Tray IDE	$99
16x Toshiba IDE	$111

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Panasonic 2.6/5.2GB Int. SCSI	$451
Hitachi 4.7/9.4GB Int. IDE	$462

[illegible]

Ricoh 4x DVD + 6x4x24 CDRW IDE	$355
Toshiba 4.8x DVD + 4x4x24 CDRW IDE	$199
	$197

BLANK CD MEDIA

Generic Silver Blue 8x/12x 10 Pc	$5
Generic Silver Blue 8x/12x 50 Pc	$19
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Yamaha 50 Pc (Spindle)	$39
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Rewritable CDRW 10 Pack w/Case 4x	$12

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Iomega Zip 250MB Int.	$83
Iomega Zip 250MB Ext. (USB)	$145
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NEC/Panasonic Zip Drive Int. IDE	$47

MOTHERBOARDS

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Mainboard (598) Video/Sound/Modem 100Mhz (AT)	$85
Mainboard (748) Video/Sound for PIII and Celeron II (AT)	$86
Mainboard (766) Video/Sound/Modem PPGA/Slot (AT)	$90
Mainboard (770) Video/Sound/Modem PPGA/Slot (ATX)	$95
Mainboard (771) Video/Sound/Modem PPGA (ATX)	$90

ABIT MOTHERBOARD

Abit BE6 V2 w/ Intel 440BX Ultra 66	$118
Abit KT7 (Socket A)	$137
Abit SA6R i815 Ultra 100 w/Raid	$155
Abit KT7 w/ Raid (Socket A)	$154
Abit SE6 Intel 815 Chipset Ultra 100	$143
Abit SL6 Intel 815 Chipset Ultra 66	$131
Abit VP6 Dual PIII FCPGA	$165
Abit CPU Converter (FCPGA/PPGA)	$19

ASUS MOTHERBOARD

Asus A7V Motherboard Socket A	$150
Asus A7Pro Motherboard Socket A	$133
Asus CU-A FCPGA w/16MB TNT2 Video	$146
Asus CUB-L FCPGA Intel 440BX w/Lan	$109
Asus CUB-E FCPGA Intel 440BX Ultra 100	$122
Asus CUR-DLS Server Platform Dual 370	$679
Asus CUSL2 FCPGA Intel 815 Chipset	$149
Asus CUSL2-C FCPGA Intel 815 Chipset	$130
Asus CUV4X FCPGA 133MHz Via	$118
Asus K7V VIA Apollo Slot A	$126
Asus P3C-D Dual (slot1) 133MHz 5-PCI	$365
Asus P3C-E Slot 1 (Rambus Only)	$187
Asus P3V-133 VIA Apollo Chipset	$92
Asus P3V4X AGP VIA Apollo Chipset	$118
Asus P5A Socket 7 ALI ATX w/Sound	$98
Asus P5A-B Socket 7 ALI Chipset AT	$89
Asus CPU Converter S370-133	$25
Asus Memory Riser Card DR2 for P3C-E	$86
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FIC 503+ Super Socket 7 SIMM/DIMMS AT	$74
FIC AZ11 for Athlon/Duron Socket A	$110
FIC SD11 for Athlon (Slot A)	$109
FIC CPU Converter FCPGA	$12

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Intel VC820 Motherboard Retail (RAMBUS Only)	$99

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Iwill WTX i840 for Coppermine Xeon	$576

MICROSTAR (MSI) MOTHERBOARD

MSI Microstar 6195 for Slot A Athlon	$129
MSI Microstar 6330 for Socket A Athlon/Duron	$152
MSI CPU Converter Board MS-6905	$24

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Tyan 1854 Trinity 400 PIII 133MHz PPGA/FCPGA/Slot	$37
Tyan 1590 Trinity 100 Super Socket 7 SIMMS/DIMMS AT	$94

PERIPHERALS

CPU/PROCESSORS

AMD (SUPER SOCKET 7)

[illegible]	[illegible]

AMD (K7 CLASSIC SLOT A)

K7 550/600/650/700/750/800/850/900/950/1000/1100	$69/N/A/79/99/105/149/155/185/218/289/N/A

AMD (K7 T-BIRD SOCKET A)

K7 700/750/800/850/900/950/1000/1100	$106/120/148/166/210/239/268/555/588

AMD (K7 DURON)

[illegible]	$59/60/71/89/109

INTEL CELERON PPGA

[illegible]	$79/79/79/N/A

INTEL CELERON FCPGA

CELERON 533/566/600/633/667/700/733	$89/92/85/88/90/100/130

INTEL PENTIUM (SOCKET 7)

MMX 200/233	$42/44

INTEL PII (512K) SLOT 1

350/400/450	$312/97/100/109

INTEL PIII (512K) SLOT 1 SEC II

450/500/550/600/600E	$100/129/139/146/158

INTEL PIII COPPERMINE FCPGA/SLOT1

PIII 500E/100MHz	$140/141
PIII 600E/100MHz	$149/150
PIII 600E/133MHz	$149/151
PIII 667/100MHz	$159/155
PIII 667/133MHz	$166/171
PIII 700/100MHz	$179/169
PIII 733/133MHz	$182/189
PIII 750/100MHz	$199/199
PIII 800/100MHz	$205/209
PIII 850/100MHz	$249/249
[illegible]	$240/269
[illegible]	$390/360
[illegible]	$465/468

MEMORY

SIMMS

[illegible]/32MB/64MB	$29/49/95

SDRAM

PC66 16MB/32MB/64MB/128MB/256MB	$35/55/99
PC100 32MB/64MB/128MB/256MB	$18/39/69/120
PC133 64MB/128MB/256MB	$39/69/120
[illegible] DDR 128MB/256MB	$170/230

SDRAM W/ECC

[illegible] 64MB/128MB/256MB	$40/59/168
[illegible] 64MB/128MB/256MB	$44/60/160

RAMBUS MEMORY

[illegible] 64MB/128MB/256MB	$175/139/544

SMART MEDIA

[illegible] 32MB/64MB	[illegible]

VIDEO CARDS

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3D Labs Oxygen 32MB AGP OEM VX1	$159
3D Labs Oxygen 32MB AGP Retail VX1	$189
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3DFX

3Dfx Voodoo III 1000 16MB AGP	$49
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3Dfx Voodoo V 5500 64MB AGP Retail	$268

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[illegible]

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Magid At Large

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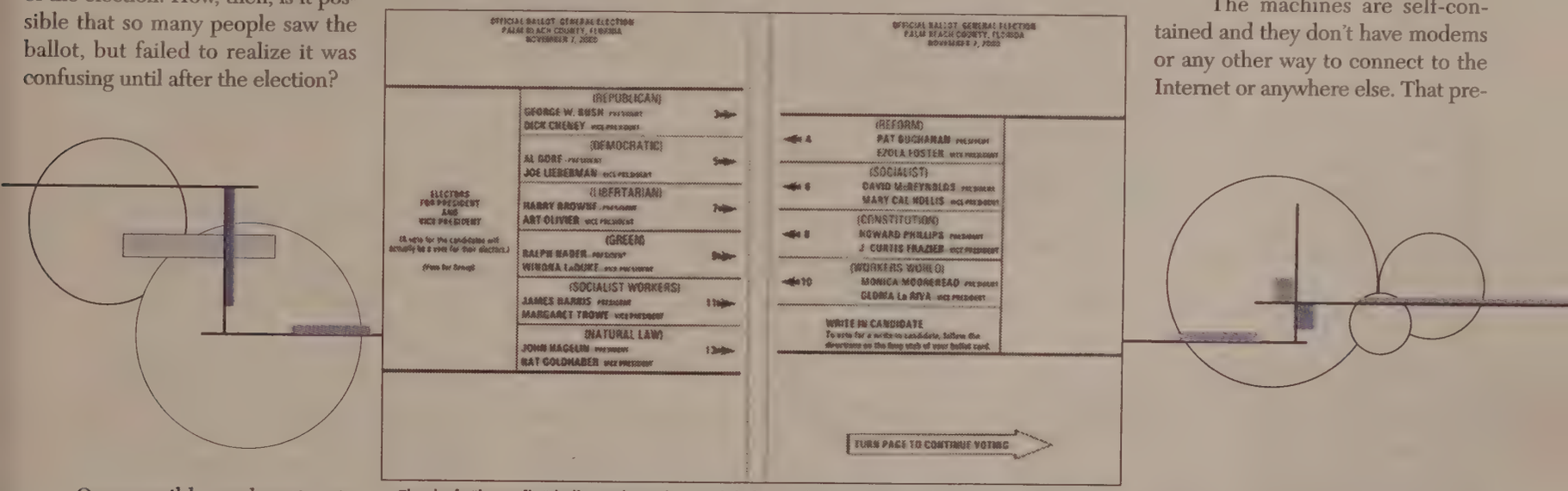
other. What you have are essentially two separate ballots that don't quite mesh.

Of course, the ballot wasn't forced on anyone. It was first approved by the Democratic elections supervisor and then by her Republican colleagues and was distributed to voters in advance of the election. How, then, is it possible that so many people saw the ballot, but failed to realize it was confusing until after the election?



The draft "butterfly" ballot without the punch holes marked was approved by election officials from both parties, but nobody bothered to test it to see whether it would be clear to the voters using it

One possible explanation is that the Democrats are sore losers. But I don't think it's that simple, considering the number of people in a primarily liberal area who wound up voting for Buchanan instead of Gore — or both. I think the answer lies in the fact that the ballot — just like a lot of software and Web sites — wasn't put through any usability testing.

Jakob Nielsen, a former usability expert at Sun Microsystems Inc. of Palo Alto, CA, has made a career out of the subject. His Web site, www.useit.com, focuses primarily on usability issues of Web sites and software, but the same concepts apply to ballots or anything else that people must master.

"The Florida ballot clearly had usability problems, caused by the attempt to map a two-column set of labels onto a one-column action area," he wrote. "A direct mapping between two single-column areas would have been much less error-prone."

Nielsen says that he doesn't "want to pass any judgment as to whether this usability problem cost Al Gore the presidency because there were so many other usability problems in other states that might have influenced the count there." Nielsen said that the day after the election.

He is absolutely right. I talked with a number of election officials after the November 7 contest who admitted to me that they don't bother usability-testing their ballots. "There isn't enough time," said one official who asked me not to use his name.

Scott Konopasek, elections manager for Snohomish County, WA, has used both the DOS and Windows versions of BPS. He blamed the problem on the way the ballot designer from Palm Beach County used the software, and said that the problem could have been avoided if the person had created two response columns instead of one.

"The procedure I've always seen applied is that each page has its own response column," he said. The BPS software, according to Konopasek, is extremely flexible. "This was no accident, he said. "The software did not do this. Somebody chose to do this with probably the best intentions in the world. It's not a computer glitch."

Nolte confirmed that the software will indeed support two columns, though he pointed out that there are some situations where a second column isn't appropriate because it takes up extra voting positions. That's because the way to adjust the layout in the BPS software is based strictly on the voting position defined for the candidate. If they wanted an extra voting column, the users would have had to assign Pat Buchanan voting position 22 instead of position 4.

It seems to me that Riverside County, CA had the right idea with its touch-screen voting system from Sequoia Pacific Voting Equipment (www.spve.com/) of Jamestown, NY. The AVC Edge Touch Screen Voting System, which costs about $3,200 a pop, makes voting a lot easier and a lot less ambiguous.

The machines are self-contained and they don't have modems or any other way to connect to the Internet or anywhere else. That prevents viruses and tampering. The only thing I don't like is that they don't give a printout of the voter's choice. I would like to see a voting machine that prints a copy of each ballot when a voter hits the "I'm done — cast my vote" button.

Whatever happens, there's no doubt in my mind that county, state and federal governments are going to conduct a "recount" on the way we elect our officials. **M**

Lawrence J. Magid has written a globally syndicated column since 1983 that originates in the *Los Angeles Times* and runs on AOL. He also has written for *Fortune, Upside, PC World, Information Week* and *Computer Currents*, among other publications. He can be heard on KCBS radio in San Francisco, KNX radio in Los Angeles, and National Public Radio; he also appears on The Internet Café syndicated TV program. Magid is the author of several books and hosts three popular Web sites: Larrysworld.com, SafeKids.com and SafeTeens.com. He is the former editor of PC magazine and co-founder of Know How, one of the nation's first computer training companies. Contact him at magid@latimes.com.

JABBER LETS YOU GAB WITH ALL YOUR FRIENDS

By Alan Winston

There's a new open-source force in instant messaging (IM). IM is a means of chatting in real time with one or more other people using remote or local machines. The idea has been around a long time, longer than the Internet. Single-machine applications like PHONE on the VMS operating system (which, to be fair, also works over DECnet across different machines) have a long history.

The TALK Internet application opens a connection between the machines two users are on. The Internet Relay Chat (IRC) application relies on a network of servers to create virtual rooms, called channels, for discussion. IRC, and IM in general, are examples of a peer-to-peer application. Peer-to-peer is a hot buzzword lately, even though many Internet applications have been peer-to-peer from the beginning.

Instant messaging got into the popular consciousness via America Online, which allowed members to check which of their buddies were logged on and send messages to those who were.

Chat is more immediate and less formal than e-mail, and if you're already logged on and using the only phone line, less hassle than picking up the phone. Because of the feedback factor, it's easier to tell when you're being misunderstood and make corrections, so IM has somewhat less of a tendency to get sidetracked into flame wars than with e-mail. It's sometimes better than face-to-face communication if one of the participants tends to monopolize the conversation or ignore signs that the other person wants to talk. Here, the other person can just type away without interrupting the first person.

An occasionally handy feature for IM or chat is that it enables the hearing-impaired to participate in dialogue in real time, without the translation phase. I found this very helpful with an associate once.

That said, I don't actually use these technologies very much, and made a point of not installing the ICQ client — a program that lets the user know when their friends are online — the last time I upgraded Netscape. I have enough trouble keeping my concentration with the phone ringing and my beeper going off. The last thing I need is another way for people to interrupt me. It might distract me so much I'd miss notifications of incoming e-mail!

In the case of TALK, I could fire up my client and try to reach you, and if your system were running a TALK daemon (a daemon is a program that runs by itself directly under the operating system, as opposed to a demon, which is part of a larger application program), my request would get to the daemon. If you were logged on, your daemon would notify you that I was trying to reach you and you could fire up your TALK client. That's just about as distributed as anything can get — any two systems can talk to each other without an intermediary. However, popular IM services don't work that way.

If I were using AOL's IM client, either on the AOL system or through my regular ISP, I would open up an instant message window, and the IM client would ask AOL's IM server which of the people on my Buddy List were logged on and hadn't turned off messaging — and then I could talk to as many of them as were willing. My client talks to the server; the server talks to their clients on my behalf. This is still, arguably, peer-to-peer, because the client running on my PC ends up communicating with the one on your PC — it just goes through a central exchange the way a telephone does.

In the very early days of the telephone, incidentally, there might have been more than one competing phone service in a town, each with its own central exchange. You could only talk to the other people who'd signed up with the same phone company you had. This is where IM is right now.

AOL has an IM server for people who are connected to its service. It also owns ICQ, for people who aren't connected to AOL. Microsoft Network (MSN) has its own IM client. You might recall a big fuss a while back when MSN was trying to get its client to work with the AOL server, and when AOL figured out that Microsoft had

done it, it changed the server so that it would no longer work.

After all, one of the selling points of AOL service is that you can talk to your friends who are already on AOL. Since AOL has more subscribers than MSN, this works in its favor; if MSN subscribers can talk to AOL subscribers, AOL loses that competitive advantage, even though it's to the benefit of all the subscribers if they can talk to each other.

Just as bad, if you're on a Palm or a BeOS box, you're not supported to run the AOL client, even if you want to.

WHY JABBER?

Jeremie Miller, a programmer who found it tiresome to be unable to chat with all his friends at once, invented Jabber. He probably suspected, quite rightly, that it was very unlikely that AOL and MSN were going to get together on a single published IM specification.

The Jabber protocol supports clients and servers, with development handled through an open source process. One distinctive feature is that Jabber clients and servers communicate using the Extensible Markup Language (XML), a protocol that contains metadata (data describing the data within). As with HTML, tags describe the fields so that you're not tied to fixed bit positions in a packet, and later enhancements can be backward compatible; clients can ignore the contents of an unrecognized tag. This means you can add capabilities to clients or servers without worrying about breaking all the clients currently in use.

Another distinctive feature is that the server architecture allows connectors ("transports") to other services. The Jabber client connects to a server and asks to talk to somebody on AOL; the server, acting as a proxy for the client, uses the AOL transport to make the connection and impersonates the client to the AOL server. The result: you can chat with your AOL friends, your IRC friends, and your MSN friends at the same time. One difficulty is that you have to either run a server or find one with the appropriate transport; the site at www.jabberview.com does frequent probes of known public Jabber servers and will tell you which ones are currently up and what transports each one supports.

Since the protocol is published and the server does most of the hard work, it's fairly straightforward to write a client application on other platforms. While the server runs on many UNIX-based platforms (including Linux, Solaris and xBSD), the clients are in various phases of development on Windows, Linux, BeOS, Mac, OS/2, Palm and iPAQ. The protocol can run over port 80 (the HTTP port) to work acceptably through firewalls. The servers are open source, and clients can be too.

The free development organization is at Jabber .org, which is largely funded by Jabber .com, a subsidiary of Webb Interactive Services Inc. Jabber .com hopes to make money by selling branded clients, doing Jabber server installs for corporations and so on. Jabber.com employs Jeremie Miller and donates his full-time services to Jabber.org.

RESOURCES

JABBER.ORG
Home of the open source Jabber development
www.jabber.org

Technical overview
http://docs.jabber.org/general/overview/

JABBER.COM
Commercialized Jabber technology
www.jabber.com

History of Instant Messaging
www.jabber.com/products/aim.shtml

Technical white paper
www.jabber.com/downloads/whitepapers.shtml

JABBERVIEW.COM:
Jabber servers available now
jabberview.com

O'REILLY NETWORK
Checking out Jabber
www.oreillynet.com/pub/a/p2p/2000/10/06/jabber_works.html

XML foundation of Jabber
www.oreillynet.com/pub/a/p2p/2000/10/06/jabber_xml.html

Peer-to-Peer summit
www.oreillynet.com/pub/a/linux/2000/09/22/p2psummit.html

FUTURE

The Jabber server architecture resembles that of an e-mail hub, where transports enable talking to multiple dissimilar machines. It's not too hard to imagine transports that can talk to things other than IM clients; Jabber could be used to communicate with, say, computers controlling building temperatures, or tracking where your car is.

It seems a little extreme to imagine a wireless embedded computer in your car using Jabber to tell the computer that runs your garage door to open up because the GPS computer sent a Jabber message saying you were just coming to your driveway, but it's not beyond the bounds of possibility.

But Jabber has to be successful in IM first. An RFC (Request for Comment, the first phase in getting an Internet standard approved) for an IM protocol has been submitted, but even if it's approved, AOL and MSN aren't compelled to adopt it. If AOL wanted to keep altering the AIM server, it could force the Jabber AOL transport developers to keep playing catch-up.

Whenever AOL made a change, Jabber would lose connectivity to AOL, which would be just as frustrating as sporadically losing the dial tone on your phone, and that connectivity would stay lost until Jabber developers could reverse-engineer the changes.

If Jabber really succeeds in establishing an extensible open messaging standard, that will be a great benefit for computer users. It will be interesting to see how this plays out. **M**

Alan Winston is the computer systems administrator for Stanford Synchrotron Radiation Laboratory, a Menlo Park, CA, research laboratory. He is a former editor-at-large of *UNIX World*. He is involved with databases, Web servers, e-mail, application development and system administration. He has been writing about computers since 1983. He can be reached at winston@ ssrl.slac.stanford.edu.

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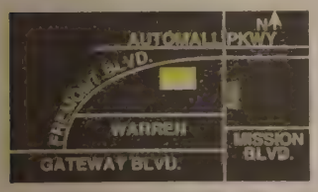

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New Products

COMPRO PDS-AV

ACS Innovations International, based in Singapore, announced its COMPRO PDS-AV, a storage device based on UltraSD technology and standard 1.44MB floppy disks, that includes a built-in MP3 decoder. Up to 32MB of can be stored on each floppy disk. It supports PCs, notebooks, Apple iMacs, PowerMacs and PowerBooks. It connects externally via such connectors as PC Card, USB and FireWire. When detached from a computer, it is a portable MP3 player. The unit features a backlit LCD display and buttons on the player offer playback control, track selection and bass and treble control.

011-65-479-3888
www.acscompro.com

ZA-100

The CT and Network Computing Division of Advantech Technologies Inc. announced the ZA-100, a full-featured 1U, thin-server system that supports single or dual Pentium III processors, dual hard drives, system fault detection and a cooling system with six fans, plus an option for IDE RAID support. Optimized for rackmount environments incorporating multiple servers, the ZA-100's form factor and PCI bus architecture allow up to 42 servers or 84 processors to be configured in a single rack.

(800) 557-6813
www.advantech.com
starting at $850

DakotaRAID

Advanced Media Services Inc. announced new firmware (version 2.0) for it's DakotaRAID network attached storage appliance. New features include support for Macintosh clients, global hot-swappable spares, gigabit Ethernet, file-level security for NetWare Network File System environments, VERITAS Backup Exec agent and support for basic tape drive autoloaders. Additionally, AMS has qualified high-performance 73GB, 10,000RPM SCSI disk drives, boosting configuration capacities to 500GB (425GB RAID 5).

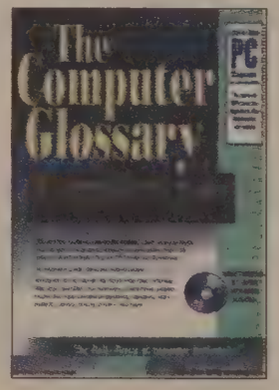
(800) 466-0813
www.amsstorage.com
Price varies depending upon configuration

Oracle8i Networking 101

Oracle8i Networking 101 by Marlene Theriault explains how interactions over a network take place and describes the hardware and software required. She describes how all the components interface to produce successful communications between computers and databases. Step-by-step procedures, illustrated by screen shots, demonstrate how to configure an Oracle 8i network. Details on Internet protocols and network encryption are also included. Written by an Oracle database administrator and authorized by Oracle Corp., the book shows readers everything they'll need to know to plan and set up an Oracle8i network.

www.osborne.com
$40

The Computer Glossary, The Complete Illustrated Dictionary, Ninth Edition



The American Management Association released the ninth edition of its best-selling reference book, *The Computer Glossary, The Complete Illustrated Dictionary, Ninth Edition*. Written by Alan Freeman, the reference book boasts 1,500 new and revised terms. Users can learn about the newest developments from the Internet and wireless communications, as well as updated information about Windows, Macintosh, UNIX, networking, client/server, graphics, object-oriented programming, standards, major products, vendors, industry profiles and more.

www.amacom.com
$30

VerbalNET 1.0

VerbalTek Inc. announced its speech recognition technology, VerbalNET, which allows access to voice portals while browsing HTML Web sites. It creates a Visual Voice Portal, which requires no extra hardware and allows users of PDAs and other mobile devices to navigate and search Web sites by speaker-independent speech recognition. Also, the VerbalNET technology reformats Web page content to fit on the smaller display of a mobile device. VerbalNET 1.0 is available for the Windows CE operating system and is expected to be integrated into Palm OS and Linux PDAs, as well as other mobile handset protocols.

www.verbaltek.com

continued on page 91 ➤

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- ATX Mid-tower Case w/PS
- 360W Stereo Speakers Set
- ECI PS/2 Keyboard & PS2 Mouse w/Pad
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PIII PC133 866EB MHz $869

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- ATI XPERT 2000 32MB AGP
- 56K V.90 PCI Fax/Modem(USR)
- ATX Mid-tower Case w/250W PS
- ALTEC LANSING ACS 33 Stereo Speakers
- Keytronic PS/2 Keyboard
- Microsoft PS/2 Intellimouse w/Pad
- Anti-Virus & Vandal Software
- Windows Millennium
  Monitor Not Included

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PIII PC133 866EB MHz $995
PIII PC133 933EB MHz $1119

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- Msi-6337 815E CHIPSET w/Audio & Video m/b
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- 10GB Ultra ATA Hard Drive
- 50X Max CD-Rom Drive
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- 3D Sound Card on Board
- ATX Mid-Tower Case w/250W P.S
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- Microsoft PS/2 Mouse w/Pad
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  Monitor Not Included

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- Intel 10/100 MBPS Ethernet On Board
- ATI RAGE Graphic On Board
- 50x EIDE CD-Rom
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- Microsoft PS/2 Mouse
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- Windows 2000 PRO

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- ATI Rage 4MB On Board
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  Monitor Not Included

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- ATX Tower Case
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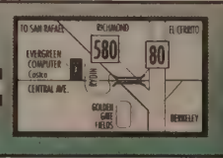

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ELSA

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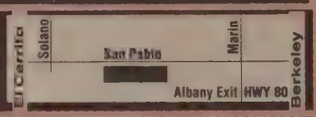

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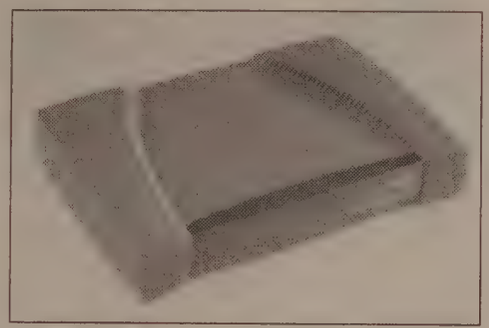
New Products

continued from page 87

i200/i500 CopperCompatible certified

Infinilink Corp. announced that it received CopperCompatible certification for its dsl-ON-ready i200 full-rate ADSL modem and i500 full-rate ADSL router. The CopperCompatible program assures telecommunications carriers, Internet service providers (ISPs) and their subscribers that Copper Mountain's DSL platform is interoperable with a variety of customer premises equipment (CPE). To receive this certification, Infinilink's products were required to pass extensive architectural and functionality tests along with network management application tests.



(949) 788-0720
www.infinilink.com

Palm Mobile Internet Kit

Palm Inc. announced that its Palm Mobile Internet Kit is shipping. The software allows Palm handheld users to connect wirelessly to the Internet using a data-enabled mobile phone. Handhelds that the kit supports include the Palm m100, Palm III, Palm IIIc, Palm IIIx, Palm IIIxe, Palm V and Palm Vx. The kit requires Palm OS 3.5, and the upgrade software is included on a CD-ROM, enabling those with an upgradeable Palm to take advantage of many new OS features.

$40 for the kit
$15 for an upgrade
$20 for the CD-ROM upgrade disk
store.palm.com

AS-2000

Lucent Technologies Microelectronics Group announced its ORiNOCO AS-2000 Access Server (AS-2000), a high-speed, wireless networking system designed to enhance security. It also provides comprehensive user and network management for service providers, businesses, educational institutions and government organizations. New features include per-user, per-session encryption that provides high levels of security to each wireless session. The AS-2000 also provides automatic, individual encryption key management, which protects the network from intrusions and simplifies key management processes.

www.lucent.com/orinoco
$1,995

PCsync

LapLink.com Inc. announced its personal file management tool, PCsync, that gives computer users everything they need, including hardware and software, to transfer files, synchronize folders, store files online, share files peer-to-peer on the Internet and create their own home network in a secure environment. PCsync includes USB network cable that delivers PC-to-PC file transfers, reaching speeds in excess of three T-1 lines and enables users to create a mini-home network between two computers or play network-enabled multiplayer games by hooking their laptop to a friend's PC.

www.laplink.com
$80

CentriQ 1220 and SURFboard SB3500

Motorola Inc. Broadband Communications Sector introduced two customer premise equipment (CPE) products for integrated home-networking applications. Both the CentriQ 1220 communications gateway and SURFboard SB3500 cable modem enable operators to offer integrated voice, video and data services more cost-effectively than with previous CPE products, according to the company. The features of CentriQ 1220, such as network powering and home networking, increase the value of operators' existing infrastructure. The SB3500 cable modem provides integrated IP telephony and high-speed data access.

(800) 523-6678
www.motorola.com/broadband

SolarExpress

Twin Paradox unveiled SolarExpress, its four-port host CardBus USB PC Card designed for mobile computer users with a desire to quadruple their USB bandwidth. Lucent's USS-344 QuadraBus IC (integrated circuit) provides 12Mbps of bandwidth to each USB port. Prior to QuadraBus USB, bandwidth was shared among all ports. SolarExpress makes it easier to connect USB-based CD-RW drives, videoconferencing cameras, scanners, Zip drives, ink jet printers, keyboards and many other peripherals, the company claims. Simply insert SolarExpress into a laptop's CardBus slot, plug in the peripheral, and the laptop does the rest.

www.twin-paradox.com
$149

Tijit

OnSystems Inc. announced its secure peer-to-peer Internet networking application, Tijit. The program is available for free on the company's Web site. It allows the user to create private, secure networks between PCs over the Internet. According to the company, Tijit is simple, inexpensive and immune to geographic constraints, making it a suitable networking tool for individuals. All the user needs is an Internet connection. Tijit will provide consumers with networking capabilities along with chat and instant messaging, at no charge.

www.onsystems.com
Free

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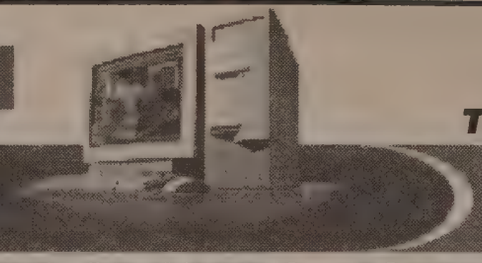

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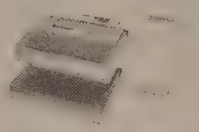

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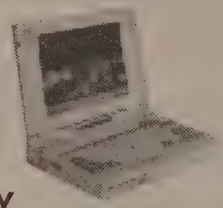

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TECRA 550CDT: P266, 12.1 TFT $799
TECRA 730CDT: P150, 12.1 TFT $549
TECRA 750CDT: P233, 13.1 TFT, 5GB..... $799
PORTEGE 300CT: P133, CD Dock/FDD...$799

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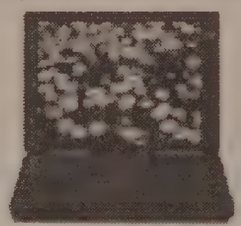

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THINKPAD 760ED: P150, 12.1" TFT, CD . $549
THINKPAD 760XL: P166, 12.1 TFT, CD. . $599
THINKPAD 765L: P166, 13.3 TFT, CD. . . . $699
THINKPAD 380ED: P166, 12.1 TFT, CD . $549
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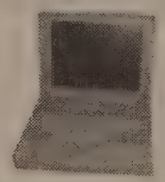

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ARMADA 1530 DM: P133, CD $499
ARMADA 4130T: P133, TFT, 1.4GB. . . $449
ARMADA 4160T: P166, TFT, 2GB.. . . . $549

DELL & HP
NOTEBOOKS

DELL LATITUDE XPI: P133 . . $399
DELL LATITUDE XPI: P150 . . $499
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privacy:
GOOD POLICY

E-BUSINESS

By Susan J. Marks

Online, offline, in Congress, in chat rooms and in the courts, the online privacy debate rages. Americans today are more worried about privacy than about health care, crime or taxes. So, what's an e-tailer to do? How do you tailor the shopping experience to customers and track their preferences with privacy in mind?

Privacy online counts for consumers. E-tailers need to know that and do business with those concerns in mind, experts agree. Those that don't could end up reeling from the sting as consumers, the courts and the government fight back.

Consider some of the privacy developments from the past year:

• Carnivore: Consumer and privacy groups and even the Justice Department took the FBI to task when it was learned that the agency had an Internet monitoring system known as Carnivore that could track traffic through an ISP. The dust still hasn't settled

• Toysmart: This toy-shopping Web site filed for bankruptcy and decided to sell its customer database despite a privacy policy that promised consumers it would never do so. The Federal Trade Commission came out swing-

continued on page 97 ➤

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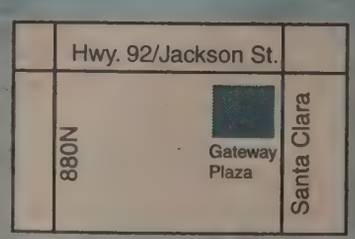

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Privacy: Good Policy

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ing with an injunction and stopped any sale — for now. The case is still pending

• Doubleclick: After merging with direct marketer Abacus Direct in 1999, the giant Web advertiser had intended to link its vast collection of anonymous Internet user profiles with Abacus' database of names, addresses and other personally identifiable data, but public outcry forced the company to back down

• Children's Online Privacy Protection Act: Effective April 21, 2001 the law requires Web sites directed at children and general audience sites that knowingly collect personal information from children to post privacy policies and obtain parental consent. Violators can face fines of $11,000 per violation

• Microsoft Web bugs: The Privacy Foundation, a Denver-based nonprofit group, revealed in August that the software giant's popular programs like Word, Excel and PowerPoint imbed invisible markers, or Web bugs, in documents that could eventually be traced back to a specific PC. Microsoft admitted the potential uses of these bugs to track Word documents, but said there was no evidence such activities are occurring

In the online privacy debate, accusations, along with growing fears of encroachments on privacy rights, provide fodder for new headlines almost daily. American consumers today are more worried about loss of their personal privacy than they are about health care, crime or taxes, according to a new Harris Interactive survey commissioned by the National Consumers League with the support of Dell Computer Corp.

This past summer the FTC urged Congress to approve legislation to provide more consumer privacy protections at the same time it was signing a self-regulatory industry initiative with the Network Advertising Initiative.

Industry self-regulation hasn't gone far enough, quickly enough, says Alice Saker Hrdy, an attorney with the FTC Bureau of Consumer Protection. The FTC has not seen enough e-tailers fulfill the four requirements for fair information practices:

• **Notice:** Web sites would be required to provide clear and conspicuous notice of their information practices to consumers

• **Choice:** Consumers should have choices as to how their personal identifying information is used beyond the use for which the information was provided

• **Access:** Consumers should have reasonable access to the information a site has collected about them

• **Security:** A site should take reasonable steps to protect the security of the information it collects from consumers

The whole point for e-tailers large or small is that they must give notice to consumers about what is being done with such information, says Hrdy. "Why? Not just because the FTC thinks it's a good thing; not just because there are bills in Congress that could one day require you under the law to do it; but because it is the No. 1 con-

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TIPS ON PRIVACY POLICIES

Consumer.net and privacy.net offer these tips for consumers when it comes to checking out a Web site's privacy policy:

• Is there a privacy policy at all? Is it easy to find? Does it have a contact e-mail address and are questions actually answered?
• Does the site have a link to its privacy policy where it collects personal information?
• Can you change your mind and opt out later?
• Is the information clear or is it confusing and full of legal mumbo jumbo?
• Do sites use "opt-in" or "opt-out" methods for the release of personal information? Opt in means the user makes a choice when the information is released. Opt out means the information is automatically released unless the user does something to stop it. Are choices automatically defaulted to releasing the information?
• Does the site have complicated methods to opt out and/or does it have several places where it is required in an effort to "wear you down?"
• Does the site say if it uses cookies? If so, does it explain how they are used?
• Does the site explain what is done with the log files and IP addresses it collects? [see The IP Address: Your Internet Identity, www.consumer.net/IPpaper.asp for more information.]
• Does the site allow downloads and/or cookies from third-party Web sites? (This is often done with banner ad networks.)
• Does the site attempt to collect personal information? Does it claim rights to this information once it is submitted?
• Does the site say if it releases information to others?
• Do sites ask for personal information (such as your mother's maiden name or a portion of your Social Security number) claiming they need this to set a password?
• If information is released, can you stop the site from disseminating it later? Does it provide instructions on how to do this?
• Note that a TRUSTe seal only covers a single Web site and not an entire company. For instance, America Online only has a seal for www.aol.com, but the member's site, and the AOL company itself, are not covered. In addition, a seal only means a site has a policy and nothing more. It does not assure that privacy is protected

Source: Consumer.net and Privacy.net

HARRIS INTERACTIVE POLL FOR NATIONAL CONSUMER LEAGUE

Among Internet users, not only are privacy fears shared by the majority, but also they have grown more severe over the past two years:

• 64 percent believe that Web sites will share their personal information
• 59 percent worry that sites will collect information without their knowledge
• In 1998, 67 percent trusted companies to somewhat follow privacy policies; currently the trust factor is 91 percent.
• In 1998, only 37 percent of users had seen a privacy notice; this year, 90 percent report having seen one
• 53 percent are afraid of their financial information being stolen
• 47 percent fear a computer virus
• 35 percent fear hackers stealing information from a company's database
• 88 percent worry about posting credit card numbers
• 61 percent worry about supplying their name and address

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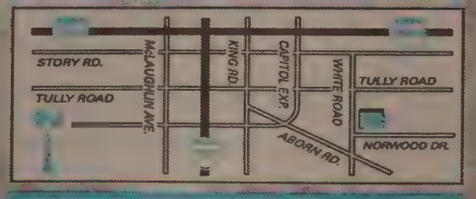

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Privacy: Good Policy

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cern of consumers going online.

"And if you want satisfied customers," she adds, "you give them what they want, which is assurance as to what kind of information you are collecting; what you are doing with it; are you sharing it with anyone else; will the consumer have access to the information once they give it to you to ensure it is accurate, and if they want to go back and delete their profile, that they can do that. ... Do they have a choice about what you do with their information and ... is the information secure?"

KUDOS FOR BUSINESS EFFORTS

Despite the U.S. government's talk about privacy and security, four of five consumers think business outshines the government when it comes to protecting their personal information. That's according to a public opinion poll released in October by the Information Technology Association of America. The group provides global public policy, business networking and national leadership to promote the continued rapid growth of the IT industry.

More than 80 percent of Americans admitted they worried about the possible misuse of government-held personal data. And, 42 percent of those surveyed think businesses big and small do a better job of protecting data on computers than the government, which garnered only 21 percent.

"This survey is a wake-up call for both government and industry. Though the Internet revolution is only a few years old, the American people expect that when it comes to their information security and privacy, we had better grow up fast," said ITAA President Harris N. Miller. "Government has been doing a lot of talking about privacy and security recently. The Keeping the Faith (poll) results suggest that Americans ... believe government should get its own house in order."

The telephone poll of 1,000 adults nationwide was conducted from September 30 to October 3 by Fabrizio, McLaughlin and Associates and has a margin of error of +/- 3.1 percent.

— *SJM*

At the very least, businesses have to reassure consumers that they are not collecting data without the consumer's consent, says Jeffrey Rosen, associate professor of law at George Washington University in Washington, D.C., well-known Internet privacy expert and author of "The Unwanted Gaze: The Destruction of Privacy in America" (Random House 2000). Some form of privacy policy is just good business practice, he adds. "I don't think that an e-commerce business can reasonably start up without at least thinking about these issues."

Dave Steer suggests that an e-tailer should go well beyond just thinking about the issue. He's spokesman for San Jose-based TRUSTe, the third-party oversight seal program. Consumers rate TRUSTe, with its 2,000 licensees, as the most trusted symbol online, according to a study by Redwood Shores, CA-based Cheskin Research.

Jeffrey Rosen associate professor of law at George Washington University in Washington, D.C.

First, e-businesses need to let consumers know that privacy matters, says Steer. He suggests accomplishing that by hiring a privacy officer who reports to the company CEO and is directly accountable for privacy issues. That person also can be an ombudsman to handle consumer complaints.

E-tailers also need to recognize that the way a system is built dictates the amount of privacy customers have. Steer suggests that privacy should be a continual checkpoint. If, for example, there's a new product release or a policy change, always consider the impact on a consumer's privacy. Other suggestions for e-tailers:

- Create an internal and an external advisory council for privacy
- Keep abreast of ongoing issues and concerns by linking up with consumer, industry and government advocate groups, many of which are free
- Communicate your commitment. "We need more Web sites to hold their privacy policies accountable by a third-party oversight organization like TRUSTe, and other seal programs"

In the past year, a number of companies have either willfully or out of negligence ended up in what Steer calls a data Valdez, spilling out vast amounts of personal information. "The biggest piece of advice I can give to them is accept and admit responsibility for these mistakes and solve them quickly. It's embarrassing to get your hand caught in the cookie jar [but] it's far more embarrassing being caught trying to cover it up."

In August, TRUSTe had to deal with its own cookie jar incident. Columbus, OH-based security consulting firm Interhack Corp. reported that the privacy advocate violated its own privacy policy by not notifying its Web site users that cookies were tracking and profiling their online movements.

TRUSTe unequivocally denied the claim, saying no personally identifiable information was being collected. But it immediately stopped using the tracking product in question, assessed the situation, then concentrated on damage control,

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Privacy: Good Policy

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putting the word out on the Web that the company was tracking anonymously where its users were going, says Steer. The result: The incident cemented for TRUSTe that its advice to others was dead on, he adds.

Focus on what's fair to consumers is Dan Jaye's advice to e-commerce companies. Jaye is chief technology officer and co-founder of Andover, MA-based Engage Inc., a software and online marketing giant recognized for its focus on profiling and marketing with privacy in mind. That means think about the fair information practices as described by the FTC, sign up for a third-party seal program, follow its requirements and indoctrinate your sales and marketing with the understanding that if they treat the customer fairly, they will be trusted by the customer and that is the basis for a long-term profitable relationship, he says.

Jaye's litmus test of whether a company's policies are privacy friendly: Consider whether the practice is something that a reasonable third party would say is fair.

For example, customers who provide personal identity information trust that company with their data. "They are expecting you to use it in a way that makes sense, that is not going to be derogatory to that individual. They also expect you to use that information to make your business more efficient. Giving it to a third party ... violates that trust," adds Jaye.

If, however, a company asks the consumer to give explicit consent to provide the data to a third party, and the consumer agrees, the trust is not violated, experts concur. In the jargon, that's known as the "opt-in" option.

On the other hand, if an e-tailer is dealing directly with the consumer and acting on its own behalf without a third party, then offering the consumer the "opt-out" option is a reasonable approach, Jaye says.

For the most invasive data gathering — like name, address and phone number — opt in is the way to go, concurs author Rosen. That's as compared with tracking people's Web browsing, linking it to their IP address and sending targeted ads on the basis of browsing without knowing who the people are.

E-tailers also often miss the point when it comes to the content of their privacy policies, adds Mercedes Lemp, marketing director for BBBOnline, another group that offers a third-party privacy oversight seal program. Web sites get the message that they need a privacy policy, but those policies often don't include the right information or are written in legalese and are too complicated to understand.

Be straightforward and specific, adds Lemp. BBBOnline's privacy seal does not require membership in a local Better Business Bureau and can cost an e-tailer as little as $200 a year.

Another caution in the privacy arena: E-tailers can get into trouble when they change their privacy policies, says Lemp. Amazon-.com, for example, recently revamped its policy. The move prompted two Internet privacy groups, the nonprofit Electronic Privacy Information Center (EPIC) and Junkbusters.com, to drop out of the e-tailing giant's affiliate program, because Amazon now reserves the right to sell customer information.

It's OK to change a privacy policy, adds Lemp, as long as customers are aware of it, and a company adheres to promises made to particular customers. "You can't change midstream." But it's even worse if e-tailers change and don't let people know about it, she says.

BBBOnline has a sample policy on its Web site that's free and available for anyone to check out. Basic components should include:

- What information you are collecting
- How you are planning to use the information; whom you are sharing it with
- The choice consumers have in terms of who is sent the information, whether they have a choice on it being sent to marketers and whether they can opt out of getting on mailing lists, for example

The issue of privacy on the Internet is like that of car safety, says Richard M. Smith, chief technology officer for The Privacy Foundation. "At one time, it was considered not that important to have safe cars, and because of deaths on highways, we decided as a society to mandate safety standards. And we take it much more for granted nowadays.

"I think privacy is in the same boat. It's not something I think the consumers really should have to worry about. It just should be an inherent feature of the Internet as opposed to what we have today, which is not very private at all." M

RESOURCES

BBBOnline
www.bbbonline.org

Electronic Privacy Information Center
www.epic.org

Engage Inc.
www.engage.com

Federal Trade Commission
www.ftc.gov

Information Technology Association of America
www.itaa.org

Junkbusters
www.junkbusters.com

National Consumers League
www.nclnet.org

Privacy Foundation
www.privacyfoundation.org

The Pew Internet & American Life Project
www.pewinternet.org

TRUSTe
www.truste.org

Susan J. Marks is a longtime business journalist based in Denver. She writes on a variety of topics ranging from health care to personal finance and technology. She has written for *BusinessWeek eBiz*, the *Los Angeles Times*, *Network World*, *MediaLine*, *The Denver Post*, *The Tampa Tribune*, *Better Homes and Gardens*, *Family Money*, *Health &You*, *The Matrix*, *United Communications Group* and *Health Ink Communications*. You can reach her at sjmarksco@aol.com

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P6S2DG2-Dual Xeon, 440GX, 2x7896 U2/S3.....$479
370DER-2xP3, 7899/160MB, 2xLan, 133FSB, VGA.$725
370DE6-2xP3, 7899/160MB, Lan, 133FSB.....$565
370DLR-2xP3, 7892/160MB, 2xLan, 133FSB, VGA..$645
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370DLE-Dual 370, 133Mhz, Lan, 2x64-bit PCI.$309
370SSR-815E, 7899/160MB, 2xLan, 133FSB, UIDE.$435
370SSA-815E, U100MB, 133FSB, Audio, 4xAGP.....$149
P3DR3-840, 133FSB, 7892/160MB, Lan, **Rambus**.....$549
P3DRE-840, 133FSB, ,Lan, Audio, **Rambus**, 4xAGP...$339
P6DGU-Dual P2/3, 440GX, U2 W/S3.....$429
P6DBU-Dual P2/3, 440BX, U2 W/S3.....$399
P6DBE-Dual P2/3, 440BX, 2xIDE, ATX.....$175
P6SBU-P2/3, 440BX, 7890 U2/S3.....$297

ASUS

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P2B-DS-Dual P2/3, BX, 7890 U2/S3.....$459
A7V-KT133 VIA, AMD Socket A, U-100MB, ATX.....$159
CUSL2-815E, 133FSB, U100MB, Audio, 4xAGP.....$165
CUV4X-Via, 133FSB, ATA/66, Audio.....$125
K7V-AMD K7, 133/FSB, ATA/66, Audio.....$139
P2B-S-P2/3, BX, 7890 U2 SCSI, IDE.....$325

Tyan

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S-2510NG-2xP3, 133FSB, 2xLan, Video.....$459
S-1837UANGR-2xP2/3, 2xU2/S3, Lan/Raid.....$525
S-2390-AMD K7, ATA/66, PC-133Mhz.....$125
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GA71XE-AMD K7, 133/FSB, ATA/66.....$115

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DCA200-2xP2/3, 840, 133Mhz, ATA/66, 4xRim.....$575
DS133R-2xP2/3, 820, 133Mhz, 2xRambus.....$295
WA133-S-370, 810, 133Mhz, VGA/4M, SCSI.....$175
DBL100-2xP2/3, BX, 7890 U2/S3.....$439
DBD100-Dual P2/3, BX, IDE.....$195
VD133Gold-P2/3, Via, 133/150Mhz, ATA66.....$149
WS133-810E/S1.4M/VGA, Audio, LAN, ATA/66.....$155

ABIT Computer Corp.

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SE6-815E, 370, 133FSB, U100MB, Audio....$149
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Celeron-633/667/700/733....$89$95/$109/$139
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Sdm-32/64/128/256.....$29/$45/$79/$135
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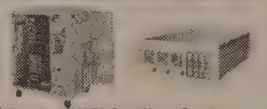

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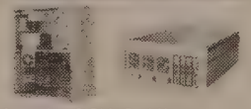

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* 256MB/ECC/Reg (up to 4GB)
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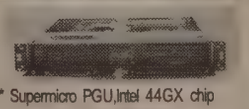
Dual P3-800E/850E.....$1529/$1619
Upgrade to Raid 0,1,5.....$Call
Redhat Linux 6.2 (CD&Manual)..$49

2U Web Server



* Supermicro PGU,Intel 44GX chip
* Dual CPU, 128MB/100Mhz
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* PS/2 104 keyboard & MS-Mouse
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Dual P3-750E/800EB.....$1859/$1879
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Dual P3-933EB/1000EB.....$2219/$2519

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* Server Work LE chip,100/133 FSB
* 256MB/ECC/Reg (up to 4GB)
* **Adaptec AD2100,160MB Raid**
* **3x 9GB U2/LVD, Raid 5 Ready**
* 48x Speed IDE CD-ROM
* 4M AGP VGA, 1.44 floppy drive
* Intel Express Pro PCI 10/100BT
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Dual P3-700E/733EB.....$2429/$2479
Dual P3-750E/800EB.....$2489/$2519
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Matrox G450-D,16/32MB,AGP....$105/$165
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3DFX-5500,Dual Chip,64MB,AGP.....$255
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STD224000N12/24GB,DDS-2,SCSI.....$559

SONY Tape Drive:

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SDT7000K4~8GB,DDS-2,SCSI.....$579
SDT9000K12/24GB,DDS-2,SCSI.....$675

Quantum Tape Drive:

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Teac-54E,4x4x32 IDE Rewriter.....$139
Plextor,12x10x32 IDE CD Rewriter....$259

SONY

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E400,19"1800x1440,.24dpi,109Khz.....$519

NEC

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A900,19",1600x1280,.28,30~92Khz.....$445
FP950,1920x1440,.25,110Khz,Flat.....$559

HITACHI

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CM771U,19",1600x1200,.22,31~107khz...$459
CM811U,21",1600x1200,.22,96Khz.....$869

ViewSonic

PF775,17"1600x1280,.24dpi,86Khz,Flat.....$349
E790,19"1600x1280,.26dpi,30~95Khz.....$365
G81021"1600x1280,.25dpi,30~89Khz.....$785
P815,21"1800x1440,.25dpi,USB.....$875

Mitsubishi

DS-70,17",1280x1024,.28dpi,30~70Khz.....$255
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NEC

XJ770 17"1280x1024,.27dpi,30~70Khz.....$239
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IBM-318350LW,18GB,7200rpm,160MB.....$349
IBM-DMVS18LW,18GB,10K rpm/160MB..$355
IBM-36950LW,36GB,10K rpm,160MB.....$575
Maxtor 54000,40GB,7200rpm,100Mb.....$199
Maxtor 5T060,61GB,7200rpm,100M.....$279
Maxtor 98196H8,81GB,5400rpm.....$295
WD200BB,20GB,7200rpm,100Mb.....$125
WD3000BB,30GB,7200rpm,100MB.....$149
WD400BB,40GB,7200rpm,100MB.....$179
Quantum-20500,20GB,7200rpm,66Mb.....$135
Qunatum-300000,30GB,7200rpm,66Mb.....$159
Quantum-309100LW,9GB,7200rpm/160M..$215
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Quantum-318200TN,18GB,10K rpm.....$355
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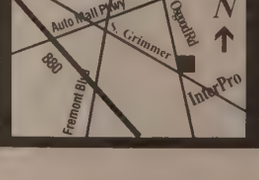

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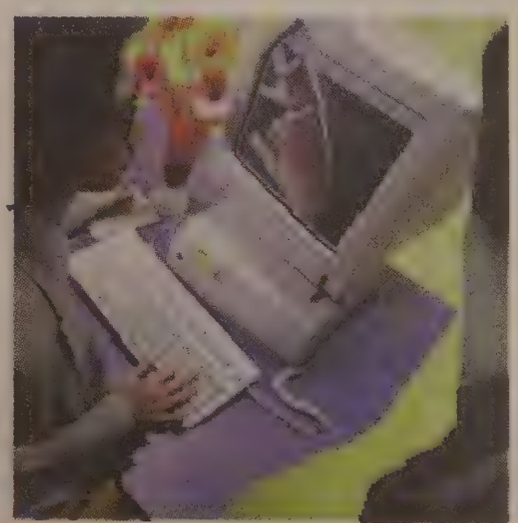

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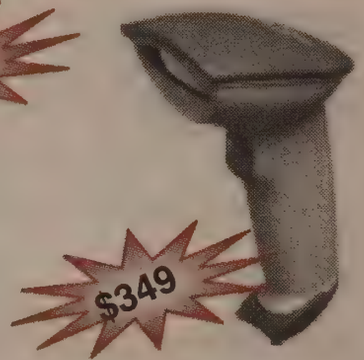

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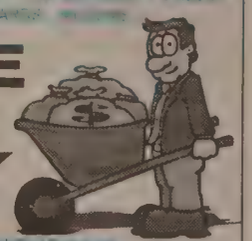

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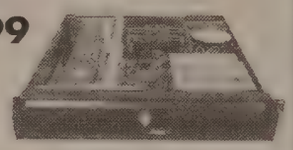

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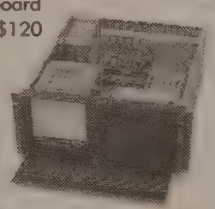

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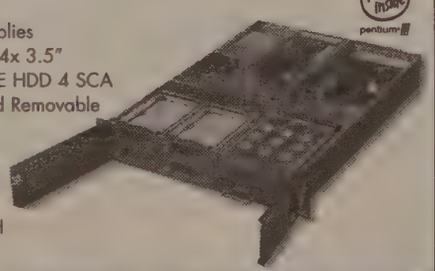

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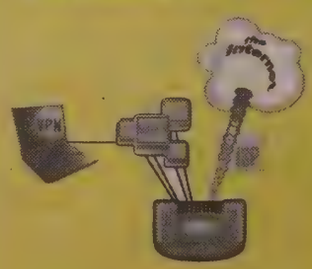

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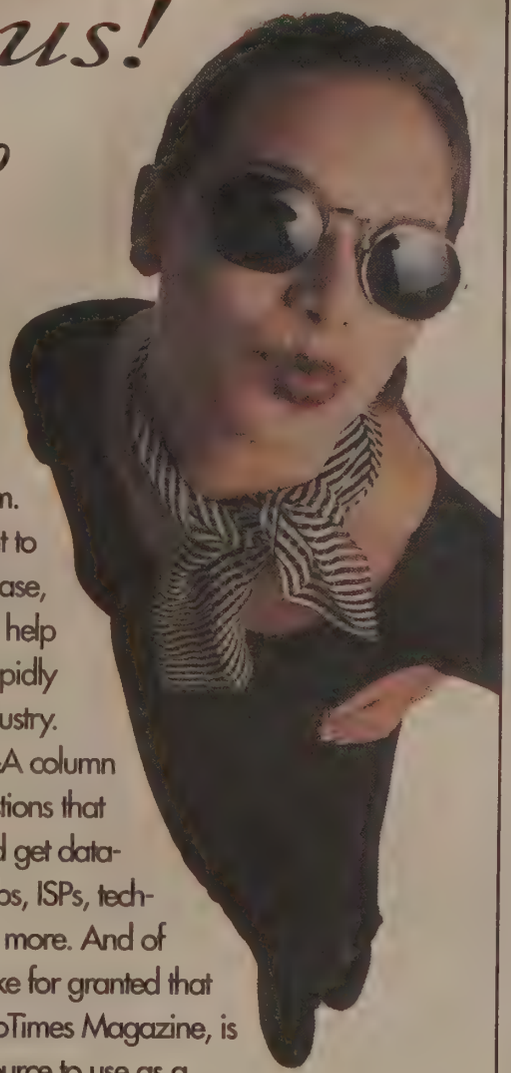

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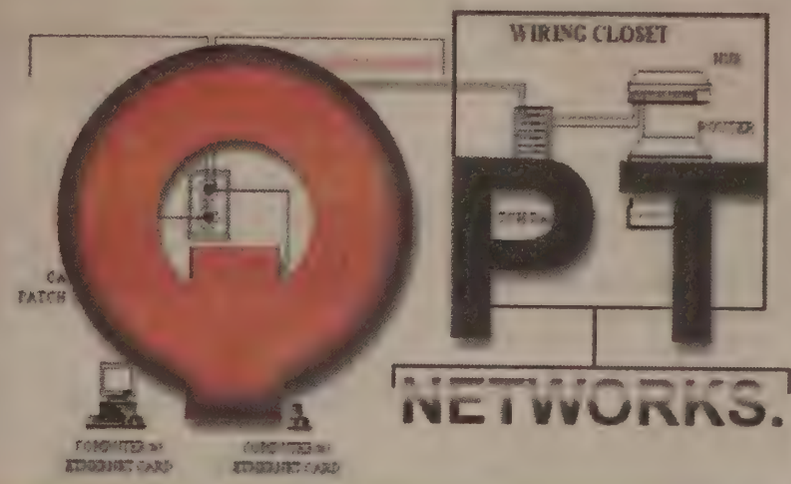

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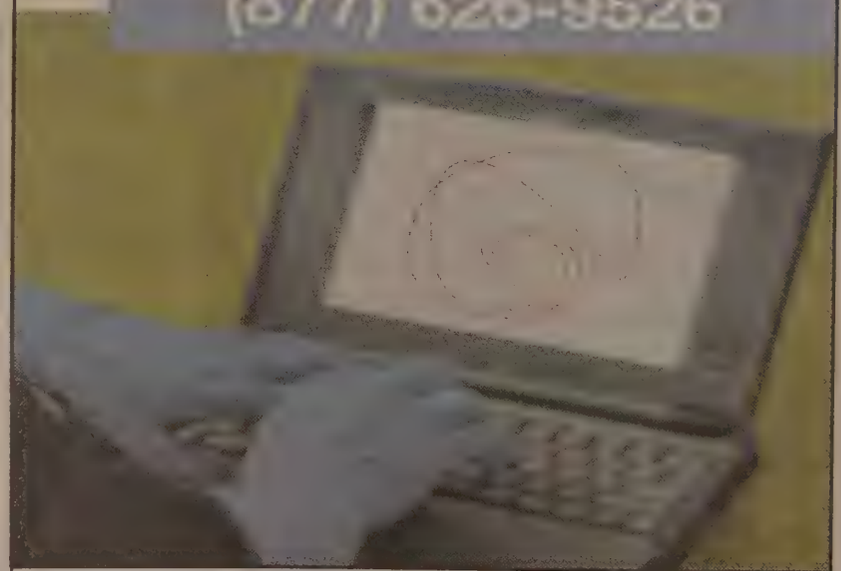

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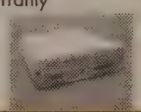

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HR Comes Of Age As Companies Realize Its Vital Importance

By Susan J. Marks

The last vestiges of human resources as an afterthought function of the boss's secretary who doles out parking spaces and plans company picnics is fading fast. Human resource management today has evolved into a strategic role at companies large and small.

Over the past year, more HR professionals have begun to focus on better linking their strategies to a company's overall goals and better leveraging the technological tools available, says Gary Kushner, president of Kushner & Co, a national employee benefits and administration firm in Kalamazoo, MI.

And that's whether the issue is compensation, benefits, labor relations, employee relations or something else. In the benefits arena, for example, taking a strategic focus means trying to re-examine all of the programs that an organization offers its employees, not in light of what has always been done in the past, but rather in light of how each one meets the attraction and retention goal and objective of the organization overall, Kushner adds.

As an outgrowth of all this, work environments are changing and HR is catching up to the Internet Age. A year ago, many companies just talked about Web-enabled programs.

Today employee training and recruitment, benefits and compensation management via the Internet and intranets help companies streamline operations, find qualified workers and gain an edge in the tight, highly competitive market.

The Internet also plays an ever-growing role in the job search and workplace itself. Job boards are becoming a mainstream option for job searches, the Web a major desktop information tool in offices. It's also a major communications link for growing numbers of telecommuters and free agents.

Today, some 38 million full-time workers and another 18 percent of part-time workers have Internet access at their jobs. More than two-thirds of those people go online at least once a day, either doing job-related research or using e-mail, according to a recent Pew Internet and American Life study.

Companies also have become more creative when it comes to compensation packages. That's especially true with technology firms. Stock options are still popular at dot-coms despite NASDAQ's roller coaster ride of the past year.

Higher compensation still is the norm.

Total cash compensation packages for top-level executives — CEO, COO and CFO — at dot-coms climbed more than 13 percent in 2000 from a year earlier, according to the accounting firm of PriceWaterhouseCoopers.

Base salaries were up at least 9 percent and bonuses 28 percent. But new hires are no longer willing to forgo a lot of cash for equity. They want competitive salaries on top of the stock, says Craig Cams, senior consultant of the Unifi Network, an HR consulting division of PriceWaterhouseCoopers.

Another difference in compensation: Internet companies are offering short-term incentives and bonus plans that are more akin to the old business performance measurements, such as increased revenue or nearing profitability, than in the past, according to a recent PriceWaterhouseCoopers survey.

There's also a lot of emphasis on creative perks, culture and environment, says Cams. He recounts one company that, as a hiring bonus, paid off the college tuition loans of an IT engineer.

At the little-more-than-a-year-old SiteSmith.com, a creative culture and working environment are key to the company's hiring and retention strategies and have been since Day One, says Pete Hilliard, vice president of HR. The Santa Clara, CA-based provider of Internet infrastructure managed services, has more than 400 employees. A cornerstone of its strategy is hiring through employee referrals and rewarding those employees with cash and travel perks.

The strategy appears to be working. The company has a turnover rate of 5 percent, compared with the average rate of 17 to 26 percent, depending on company size, according to the 2000 Retention Practices Survey from the Society for Human Resource Management.

"I really believe that people remain employed in an environment where they have fun, and they have the ability to make friends and build friendships and in an environment where they have a sense of doing what they do best every day and in an environment where they know where they stand," says Hilliard. "That's really the

continued on next page ➤

HR Comes Of Age

continued from previous page

kind of culture we have tried to build here. The loudest statement that we live up to our culture is that 72 percent of our people came from our people."

Even with a $1,000 per-employees-hired reward for referrals, and including the cost of three trips for two thus far to Hawaii, SiteSmith has saved 50 to 60 percent on a cost-per-hire basis, adds Hilliard.

In the past year, he hired more than 400 employees. He also is a 12-year HR veteran at fast-growing companies. "Philosophically, I take the approach that today we have 424 recruiters and every time we hire somebody, we hire a new recruiter."

Among other changes Hilliard has seen over the past year or so, HR professionals today have to be talent scouts because of the huge demand for qualified workers. It's also no longer acceptable for a company to take a week or two to select a new hire. SiteSmith tries to make its decision within 72 hours, says Hilliard. And, beyond employee referrals, his staff, known as the talent acquisition department, actively surfs the Net for résumés.

A year ago, companies also were caught up in spiraling hiring, compensation, bonuses and benefits. It was quality and quantity, with a reluctance to address efficiency and cost. No more, says Nick Burkholder, a Jenkintown, PA-based consultant with HR Alliance and CEO of Staffing.org. Suddenly the bottom line is a big concern.

"Companies are not going to change their hiring requirements, but they are going to be more careful about how they spend their money. ... HR departments are being forced to manage and to document their contributions to the organization and what they are getting for the resources they are spending."

From the job seekers' point of view, that means those candidates who use their résumés to talk about what they measurably have contributed to their organizations are going to have a competitive edge, adds Burkholder.

One of the big changes in employee recruitment and hiring is that candidates are doing their job-shopping online, says Stephanie Hampton, director of technology communications for Washington, D.C.-based Marriott International, a leader in adopting new technologies.

Job candidates background themselves on the company online, and are coming to interviews a lot better educated, she adds.

"They come with the realistic expectations and they have already narrowed down their choices before they have arrived so it's a better use of your time and their time." In the past, only the smart, aggressive candidates were that informed, and then only by calling and asking for an annual report, she adds.

Another application of Internet-based recruiting at Marriott and elsewhere: Jobs, careers and HR information are accessible online. Marriott, with its 151,000 employees, is piloting a program that offers annual benefits enrollment via the company's intranet.

A well-designed and implemented corporate intranet allows volumes of transactions — hiring, enrolling in benefits, providing performance feedback — to occur, says Kathleen Alexander, Marriott's senior vice president of human resources.

"This allows human resources professionals to focus on strategic business issues, and it provides employees with useful information that is more accurate, easy to navigate and available anytime they want it."

Additionally, Marriott actively recruits online, with recruiters monitoring job boards and other Web sources in search of talent.

But despite this growing reliance on the Web, Hampton says it hasn't taken the human out of human resources. The department actually has mushroomed in size. "You still need people to coach and counsel, provide career advice and support the whole recruiting and interviewing process. You still need people that have the human touch." M

Susan J. Marks is a longtime business journalist based in Denver. She writes on a variety of topics ranging from health care to personal finance and technology. She has written for *BusinessWeek eBiz, The Los Angeles Times, Forbes ASAP, Human Resource Executive, Network World, MediaLine, The Denver Post, The Tampa Tribune, Better Homes and Gardens Family Money, Health &You, The Matrix, United Communications Group* and Health Ink Communications. You can reach her at sjmarksco@aol.com.

WHILE THE BOSS IS AWAY, THE MICE SURF

More employees are using the Web at work for personal reasons, according to Ipsos-Reid, formerly the Angus Reid Group, which examined Internet usage in the workplace. Some of the findings:

- 46 percent of all employees with Internet and e-mail access at work go online for personal reasons
- 55 percent go online to send or receive personal e-mail
- Employees aged 18-34 are much more active than their co-workers; 57 percent report personal surfing at work and 68 percent use e-mail for personal reasons at the office
- What do surfers do online? 89 percent access research or search engines; 75 percent check out news or sports headlines; 67 percent comparison shop; 45 percent actually purchase online; 49 percent check out the stock market; 14 percent do their banking; 22 percent play games, and 11 percent visit adult Web sites

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Timing, Coordination Can Be Critical In Interviewing Candidates

By Jim Stedt

High-tech startups are very difficult, to say the least. If you are a partner, owner or one of the founders, you must know what it takes to put an HR department together.

This month we continue our interview of the director of human resources for Ethentica Inc., a company in the fingerprint-based authentication industry located in Lake Forest, CA. Ellen Brown has more than 20 years experience in human resources and has a degree in management from Pepperdine University.

MicroTimes: There are sure a lot of things to do for a one- or two-person HR department.

Ellen Brown: Exactly. That is why outsourcing some of these functions, such as recruiting and compensation studies, is a necessity. Many projects come and go, and it makes good economic sense to outsource what you can because you are always working against the clock.

We have not even discussed the bottom-line problem of HR, which is supporting the employees. The typical HR manager has no idea what each day will bring because we are working with people — people who have accidents, insurance problems, inquiries on stock and/or salaries, questions on transfers, vacation, etc. Moreover, some days they just need someone to "vent" or talk to. Employees will always have priority over your other projects; they are your most important asset.

MT: How do you handle the interview process?

Brown: The high-tech industry is in the toughest job market in the last 30 years. Good employees are tough to find, so you want to have a smooth interview process. The creation of an evaluation form helps the interviewers to express themselves in written format.

Next, always let the receptionist know who is coming in and whom they are to see. Never keep the candidates waiting in the lobby before or between the interviews. Be sure to give them the company history, and brochures on the company and benefits program. Remember that the candidates are comparing your company to others they are interviewing, and the way you treat them could be the ultimate reason why they accept your offer.

SECOND OF TWO PARTS

MT: Is it easier to hire people into a startup company?

Brown: Sometimes. Sometimes not. If they have been "stung" by a dot-com or other startup that went under, they might ask many questions about the financing of the company. It also takes a unique individual to work at a startup. There are long hours, you will wear many hats and take many risks. In addition, there is little structure, few policies and procedures, and priorities change daily. However, on the other side, you can implement your own ideas and concepts, do not have to clean up anybody else's mess and the financial rewards can be worthwhile.

MT: What should high-tech hiring managers know about staffing their group?

Brown: As we discussed before, a detailed job description is the first step. The job description might change after a few interviews and that is not a problem as long as the HR department is notified and the changes are documented.

It is important that the hiring manager does not make the candidate wait or feel foolish in any way. The hiring manager must also contact the HR department the day after the interview and determine the next course of action. This will either be to bring [the candidate] back for additional interviews, make an offer, send a "no thank you letter" or update the job description to look for a slightly different talent set.

Whatever the action, the HR department needs to know right away in order to be responsive to the candidate.

Even if you feel that they will not fit in with the organization, they want to know where they stand.

MT: Finally, what is the most important concept for the HR person and technical hiring manager in a startup to know?

Brown: To be successful, you need to be able to "go with the flow," as it will be hectic, demanding, exciting and changing all the time. Being able to react quickly is the key. **M**

Jim Stedt founded Hartley & Associates of Santa Ana, CA, in 1984. The firm provides recruiting, management and technical consulting. Reach him at hartleynet@aol.com

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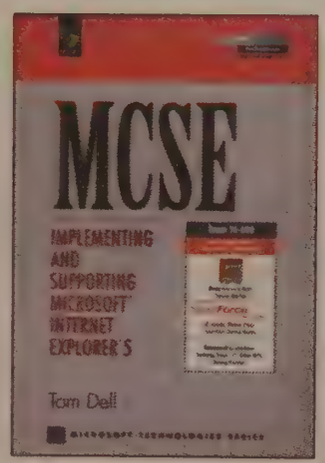
Internet Development And Networking Are Technology's Hottest Jobs

Internet/intranet development and networking are the job categories most in demand, according to chief information officers (CIOs) surveyed for the semiannual RHI Consulting Hot Jobs Report. The two specialties were cited by an equal number of technology executives as the leading growth area within their IT departments. The Hot Jobs Report tracks job growth in information technology through a survey of more than 1,400 CIOs nationwide. The study was developed by RHI Consulting and conducted by an independent research firm. The seven specialty areas experiencing the strongest growth, as ranked by CIOs, are:

Internet/intranet development	20%
Networking	20%
Help desk/end-user support	17%
Applications development	12%
Project management	5%
Systems analysis	3%

LiveMotion Visual JumpStart Helps Animation Novices

Sybex Inc.'s *LiveMotion Visual JumpStart*, written by Richard Schrand, is designed to allow readers to master the essentials of Adobe's LiveMotion, a vector-based Web graphic and animation tool. Using easy-to-read screens and illustrations and explanations, this book describes the LiveMotion user interface and its key features and tools, and gives readers the fundamentals they need to create animation and vector-based graphics on the Web. Call (510) 523-8233 or visit www.sybex.com to order. List price is $20.



MCSE: Implementing and Supporting Microsoft Internet Explorer 5

MCSE: Implementing and Supporting Microsoft Internet Explorer 5 by Tom Dell, released by Prentice Hall PTR, was written to help students pass Microsoft's MCSE Internet Explorer 5 exam, according to the company. This book/CD-ROM package presents detailed coverage of every exam objective, including guidance on customizing IE5's installation and behavior with the Internet Explorer Administration Kit (IEAK). It covers how to configure Outlook Express, NetMeeting, channels and site subscriptions centrally; manage security; control access to intranets; configure IE5 to work with proxy servers; and much more. Call (800) 282-0693 for single copy orders or visit www.phptr.com. List price is $50. M

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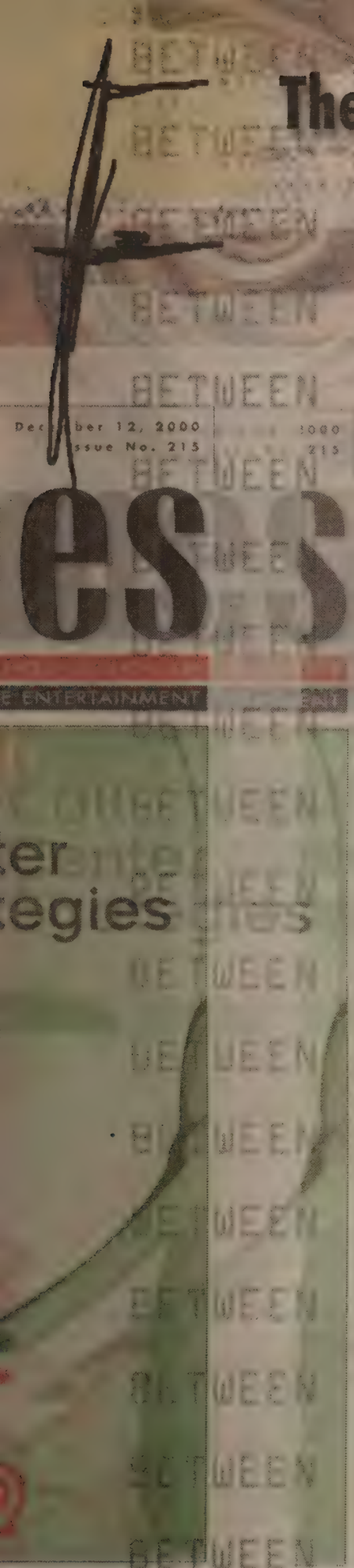

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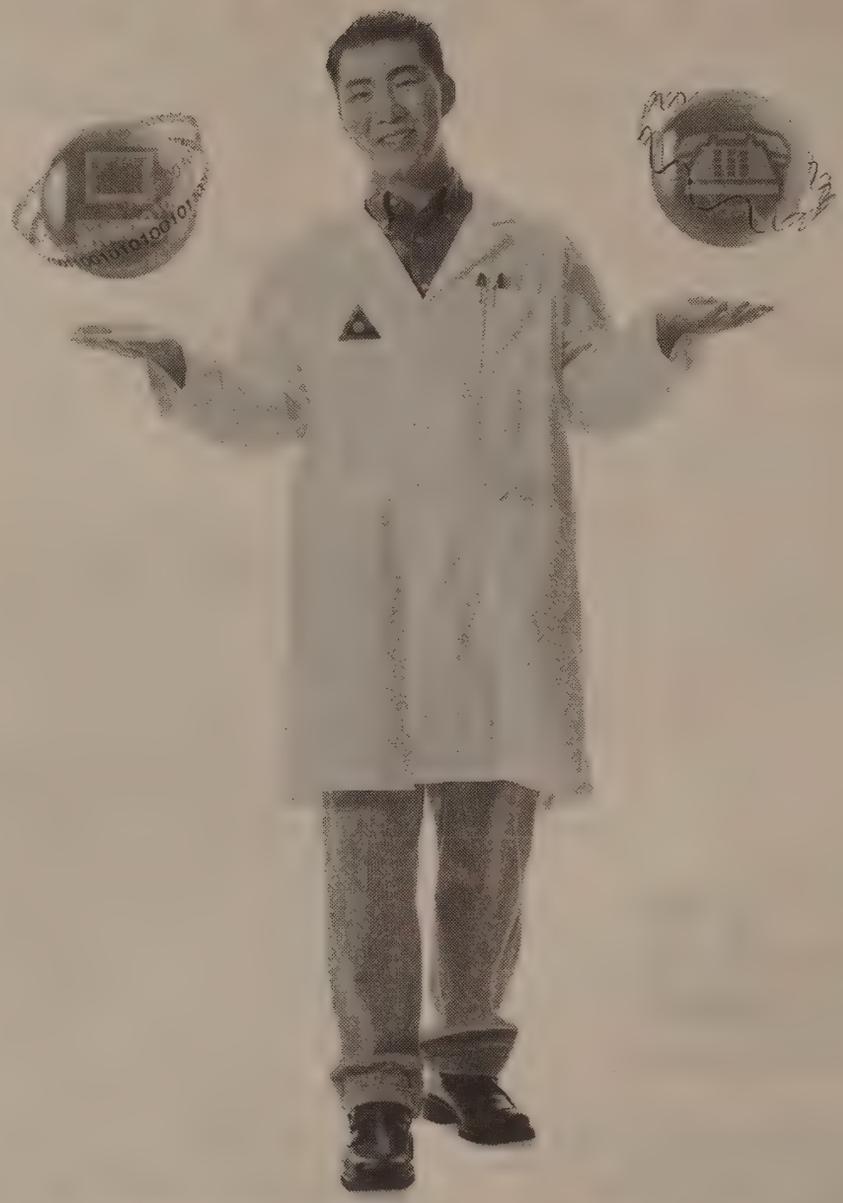

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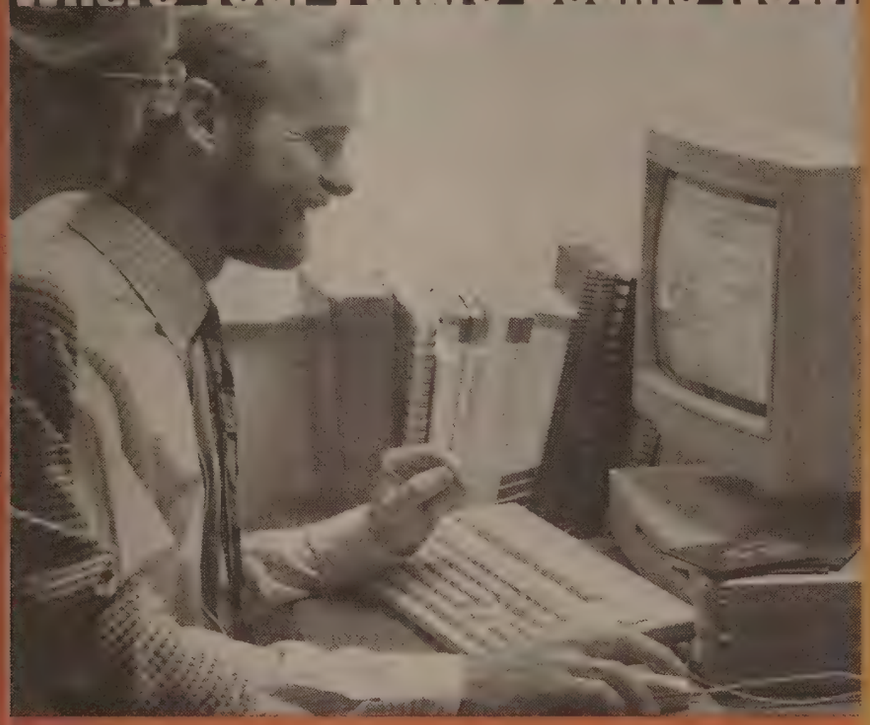

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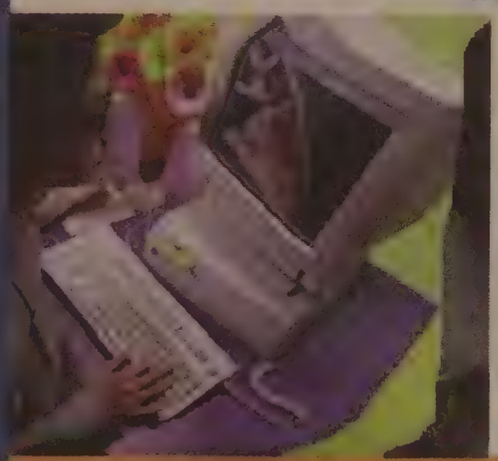

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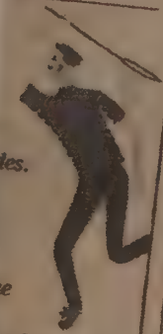

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Online Community Claims Phenomena Is Not Quite Paranormal, Just ExtraOrdinary

CYBERVILLE - Town officials have received dramatic reports of mysterious sightings or, as locals prefer putting it, "siteings" involving an online community that has witnessed the proliferation of growth opportunities all around it. Although authorities claim no knowledge of such "siteings," the inquisitive populace has continuously visited the site of the alleged activity where a flash of light was reported and the crash supposedly took place. Visitors of the site point not only to the overwhelming physical evidence of the crash, but to a sudden, undeniable upsurge in their ability to stay ahead of technology market trends and maintain a fresh perspective to fit their ever changing business needs. Officials claim that they are not authorized to release any information on this strange and unexplained phenomena, but visitors are more than willing to share their accounts of what they have termed as "the building block in the foundation" of their businesses. Different reports from this online community are pouring in, but the results are the same: Visitors have embraced this virtual resource tool into their community, and whether it's industry news, stories for the technology buyer and seller, job listings, or product reviews, they all claim without a hint of irony that this is a "crash" they were glad to have occurred.

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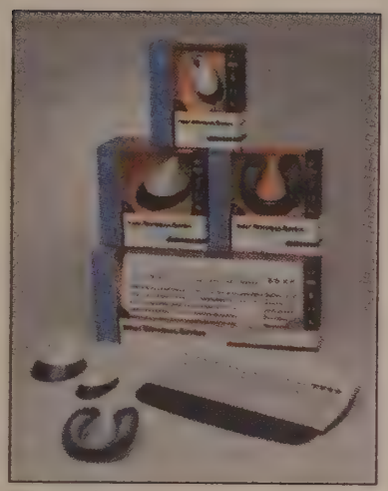
Wireless Witch Wants To Be A Millionaire And Jam-It

By Jim Pedicord

Intel Wireless Series

Intel Corp. helps eliminate desktop and workstation cord clutter with the release of the Wireless Series of computer peripherals. The main component is a base station that plugs into a USB port and allows access for up to eight other components, including a keyboard, mouse and gamepad. The keyboard adds a fold-away palm rest, Internet access buttons and multimedia controls such as system audio volume and CD control. The symmetrical mouse with scroll wheel is ambidextrous. The U-shaped gamepad includes two triggers, a "D" pad, six programmable buttons and profiling software to set up customized button patterns for different games.



www.intel.com
Base station $60
Mouse $60
Keyboard $80
Gamepad $65

Blair Witch Trilogy

Gather of Developers has brought the mythos of the horror movie, "The Blair Witch Project," to the PC with the release of a trilogy of Blair Witch games. Each is an action adventure with your character facing off against the forces of evil as he uncovers secrets to this mysterious area of Maryland. Blair Witch Volume 1: Justin Parr places you in charge of Agent Doc Holliday as he attempts to uncover the secret of a murderous hermit in the 1940s. Blair Witch Volume 2: The Legend of Coffin Rock draws the player into a post-Civil-War saga of a missing and mysterious girl who befriends a soldier with amnesia. Blair Witch Volume 3: The Elly Kedward Tale, recounts the adventures of a witch hunter on the trail of Elly Kedward, who was banished from Blair for witchcraft in the 18th century.

www.godgames.com
$20 each

Who Wants to Be a Millionaire: Sports Edition

For the avid sports fan, the popular TV game show "Who Wants to Be a Millionaire" hits the computer screen with Who Wants To Be A Millionaire: Sports Edition from Buena Vista Interactive. With all the features of the show, including the Fastest Finger round and Life Lines, this version takes a different spin, with the questions based on major team sports and a dose of minor sports thrown in as well. With comments and questions spoken by Regis Philbin himself, this title puts the player in the hot seat, just like the TV show.

www.bvinteractive.com
$20

Jam-It

KB Gear Interactive brings digital sound mixing to teen-agers with Jam-It, a handheld digital recorder and software package that records and alters sounds with a few simple clicks. The futuristic Jam-It Player fits neatly in one hand and can transfer recordings to the computer by a cable link to a sound card. From there, digital effects such as warping, reverb and background sound track can be added. Using the Jam-It software, the budding sound and video engineer can synchronize pictures with sound and even add "moving" lips to still photos for the ultimate in lip-synching.

www.kbgear.com
$50

AGP-V7700 Deluxe

For a combination of blazing video graphics speed and plenty of features, Asus released the AGP-V7700 Deluxe Video Card. This 32MB card utilizes the nVidia GeForce2 GTS chipset and AGP 4X to deliver unparalleled graphics power and effects. With built-in anti-aliasing and Transform & Lighting, it can power the latest computer games to their maximum graphics levels. In addition, the card comes with full video in and out capability with composite and S-video jacks. Bundled

continued on next page ➤

Wireless Witch Wants To Be A Millionaire And Jam-It

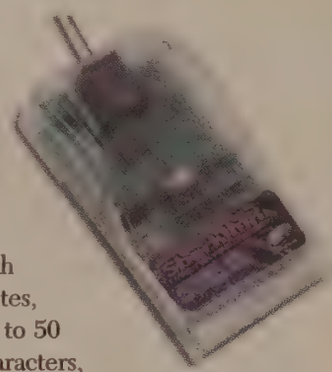
continued from previous page

are a pair of 3-D stereoscopic glasses, Soldier of Fortune computer game, a software DVD player, video-capture capabilities and Asus Smart Doctor board monitoring software.

www.asus.com
$299

Shark MX

Send an e-mail from your Game Boy Color? Shark MX from Interact adds this capability in the form of an easy-to-use PDA. A simple phone book, calculator, address book, clock, calendar and e-mail program are included on the cartridge and a cable connects it easily to any phone jack for sending and receiving e-mail through an Interact server. Charges are time-based. With the purchase of the Shark, you get 30 minutes, and additional time can be purchased. Up to 50 messages, with a maximum size of 2,000 characters, can be stored in it.



www.interact.com
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Microsoft Casino

Microsoft Corp. rolls the dice, bringing Las Vegas action to the computer with Microsoft Casino that accurately reproduces three famous gaming palaces, The Mirage, Bellagio and Treasure Island. Ten of the most popular games can be played: blackjack, pai gow poker, Caribbean stud poker, baccarat, craps, roulette, the big 6 wheel, video keno, video poker and the ever-popular slot machines, giving you the closest gambling experience you can get short of the Strip.

www.microsoft.com
$30

Shenmue

Sega introduces the Dreamcast owner to a virtual world of intricate detail and adventure with the release of Shenmue. This action/adventure game places the player in control of Ryo, who must find the truth behind his father's untimely death. Gameplay involves conversation and clue finding in a world that includes such minute details as working vending machines and the need to return home to sleep at night. But action also plays a key part to the game, with battles against hoodlums and other undesirables as Ryo learns martial arts skills from teachers and books. A finely crafted plot with hundred of characters and objects to examine make for hours of gameplay.

www.sega.com
$50

Donkey Kong Country

Nintendo brings back one of the classic video games of all time with the release of Donkey Kong Country for the Game Boy Color. Navigate through all the original levels, dodging barrels and exploring the world of Donkey Kong with all its crazy characters. In addition, this new version offers secret hidden levels and multiplayer games with the use of the Nintendo Multilink cable.

www.nintendo.com
$30

Hallmark Scrapbook Studio Deluxe

Sierra Home brings the scrapbook hobby to the computer with the release of Hallmark Scrapbook Studio Deluxe. This graphic design program has 500 templates to create an assortment of scrapbook pages, as well as more than 320 fonts, 4,000 images and SnapShot Express to edit pictures digitally and place them on the pages. In addition, there are more than 500 paper doll accessories to create a variety of classic paper toys. This program creates a new format for storing memories of family keepsakes and history.

www.sierrahome.com
$40

Jetfighter IV: Fortress America

Talonsoft Inc. puts you in control of the world's top fighter aircraft as you defend American soil in JetFighter IV: Fortress America. This simulator lets you fly F-14s, F-18s and even the latest F-22 jet fighters in the skies over San Francisco as you defend the country from enemy invaders. Using highly detailed graphics, downtown San Francisco and 50,000 square miles of surrounding terrain have been carefully mapped out for high-speed dogfights. Fly in campaign mode against the computer or hook up to the Internet or a LAN for dogfighting action with up to 16 other pilots, all recreated with accurate instrumentation and flight models of the real jets.

www.talonsoft.com
$40

Escape From Monkey Island

Guybrush Threepwood, the lovable misfit pirate from LucasArts Entertainment Co.'s long-running Monkey Island series, returns with Escape From Monkey Island for the PC. This animated graphic adventure returns many of the zany characters who seem to interrupt Guybrush's attempted life as a pirate. The player must navigate hundreds of puzzles to uncover various schemes on the high seas and islands in the area. Everything graces this wacky world, from sociopathic parrots to a swordsman who uses insults instead of steel.

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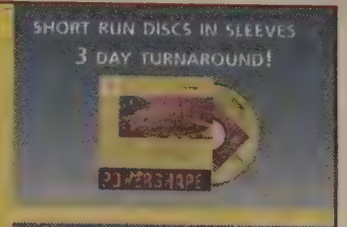

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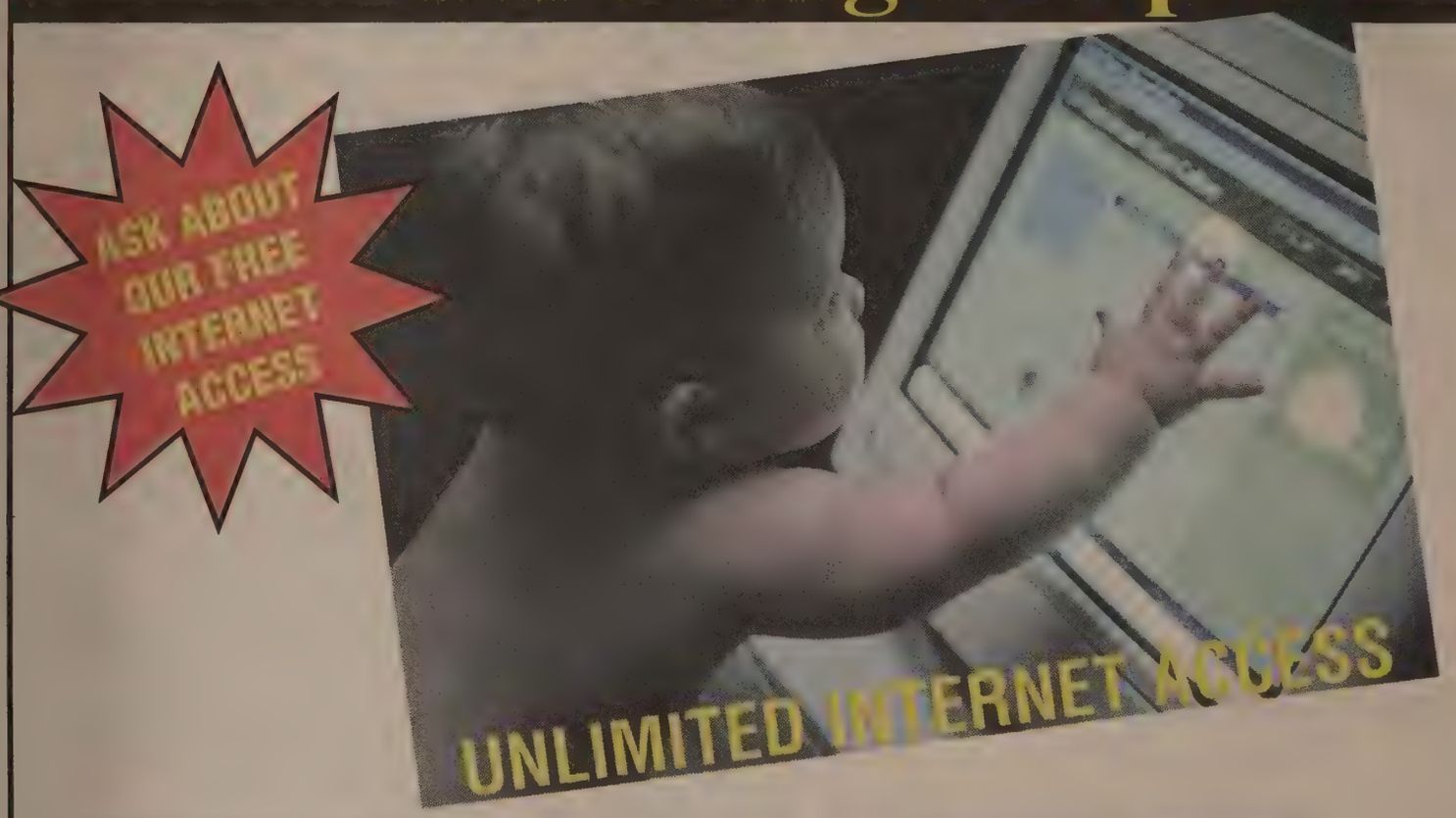

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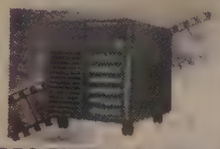

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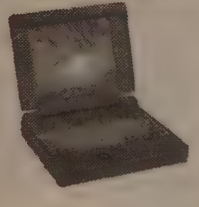

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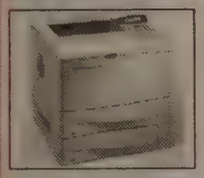

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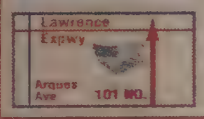

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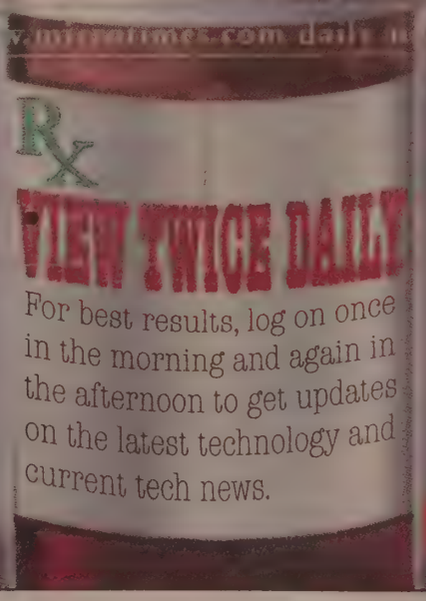
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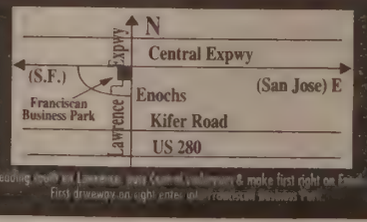

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Faxmodem (#2977)
Windows 98 2nd Edition
(MONITOR NOT INCLUDED)

Pentium III® 866EB	$885
Pentium III® 800EB	$828
Pentium III® 667EB	$780

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-Asus CUV4X Via Apollo chipset MB supports 100MHZ & 133MHZ, slot 1,& 4X AGP
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-Maxtor 20GB ATA100 7200rpm
-1.44 TEAC FD
-ATI Xpert 2000 32MB 2X AGP support DVD
-Inwin ATX Medium Tower Case
-104 Keytronics keyboard
-Viewsonic E70 17" monitor
-Audio on Motherboard
-Toshiba 12X DVD Rom
-56K V.90 US Robotics Fax modem (#2977)
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-Windows 98 2ND Edition

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Microsoft IntelliMouse &pad
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AMD K7-850	$1007
AMD K7-800	$1000
AMD K7-750	$960

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128MB PC133MhZ
Global WIN heatsink&fan
ATI Xpert 98 2X AGP 8MB
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-104 Mitsumi keyboard
-Sony 48X EIDE CD ROM
-Audio Integrated on MB
-400W Stereo Speakers
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(Monitor not included)

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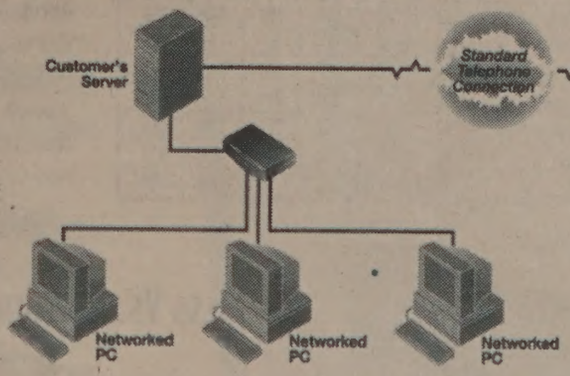

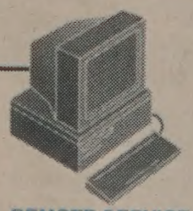
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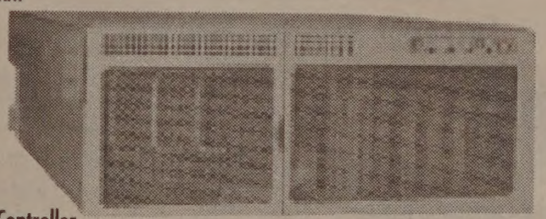

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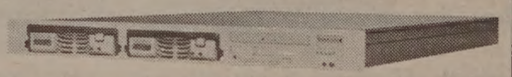

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Analysts' Outlook

Major Growth, Changes Forecast For E-commerce

Despite the recent gyrations of the stock market and shakeout of dot-com companies, market research firm Basex Inc., headquartered in New York City, is bullish on e-commerce. According to the firm, traditional EDI (electronic data interchange), which is very expensive and based on proprietary technology, is being replaced by more economical Web- and wireless-based applications.

While the firm sees significant growth for the next four years — Basex anticipates that business-to-business revenue will hit $3.9 trillion by 2004 — it also foresees market changes beyond that point. Specifically, cable modems and digital subscriber line (DSL) Internet connections will be more ubiquitous, and wireless devices will become prevalent. "Who connects, how and why will change," says Ellen Pearlman in her report, "Speeding Channels And Weightless Changes, A Look At The B2Bconomy Boom."

BASEX sees several key issues facing the growth of business-to-business e-commerce over the next several years. They include:

- EDI makes up the current bulk of business-to-business sales, but its use is diminishing
- By 2003, almost half of business-to-business revenues will be outside the U.S. and standards might not be compatible with existing American and European standards
- Small and midsized businesses will experience the fastest growth, but they might not link up seamlessly to larger businesses
- Marketplace trade will affect direct trade between partners and change traditional market relationships
- An estimated 17 percent of all business-to-business e-commerce will be conducted over the Web, which could overwhelm existing networks

The report is available from the company at www.basex.com. M

Worldwide Sales Forecast

	1999	2000	2001	2002	2003	2004
Auctions	37.9	107.4	178	311	421	577
Supply-side Catalogs	14	27	50	124	347	356
Content Mgt	2.1	6	31.5	81	171	286
Procurement & SQL	N/A	14	79	114	218	497
Procurement	28	49	206	396	611	888
Supply Chain Mgt	17	51	128	260	513	656
Catalogs	21	84	176	308	521	640
TOTAL	**120**	**338.4**	**848.5**	**1.59T**	**2.80T**	**3.90T**

Worldwide business-to-business sales of goods are expected to reach $3.9 trillion by 2004, according to Basex. The report, which did not include revenue from markets such as multimedia, online training, Internet consultants, search engines and financial services, concludes that business-to-business e-commerce "continues to experience astronomical growth."

Source: Basex

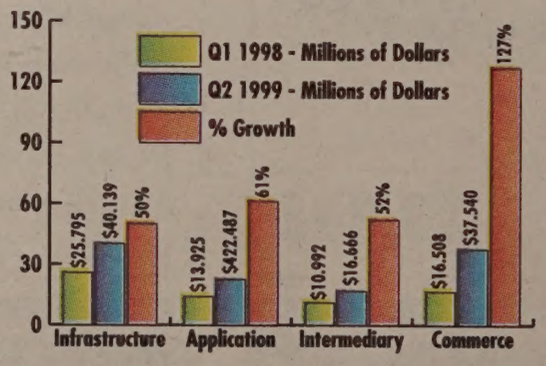
Business Vs. Consumer Sales

Business To Business	Business To Consumer
Large volumes bought	Auctions
Pay by credit card	Supply-side catalogs
Set price, only negotiated by specialized vendors (Priceline)	Usually negotiated
Procurement & SQL	Procurement & SQL

Business-to-business sales are outpacing those of consumer-oriented sites. "Real B2B consists of aggregators, auctioneers and exchanges that are reshaping business trade relationships," the company says. They are creating vertical markets and "changing the rules of business by flattening out a score of industries." In addition, the company says that "the value of e-commerce has even outpaced [1999's] most optimistic forecasts."

Source: Basex

Internet Revenue Growth Soars



Revenues from e-commerce grew by an aggregate 68 percent from the first quarter of 1998 to the second quarter of 1999. Infrastructure consists of backbone providers, ISPs, network equipment, conduit manufacturers and client and server hardware. Application layer contributors include e-commerce apps, Web development software, Web-enabled databases, network operating systems, Web hosting and support, and transaction processing companies. Key intermediaries include market makers portals and content providers, virtual malls and a single Internet ad broker. Commerce layer contributors include e-tailers in selected categories, manufacturers selling direct, shipping services and some professional services organizations.

Source: University of Texas

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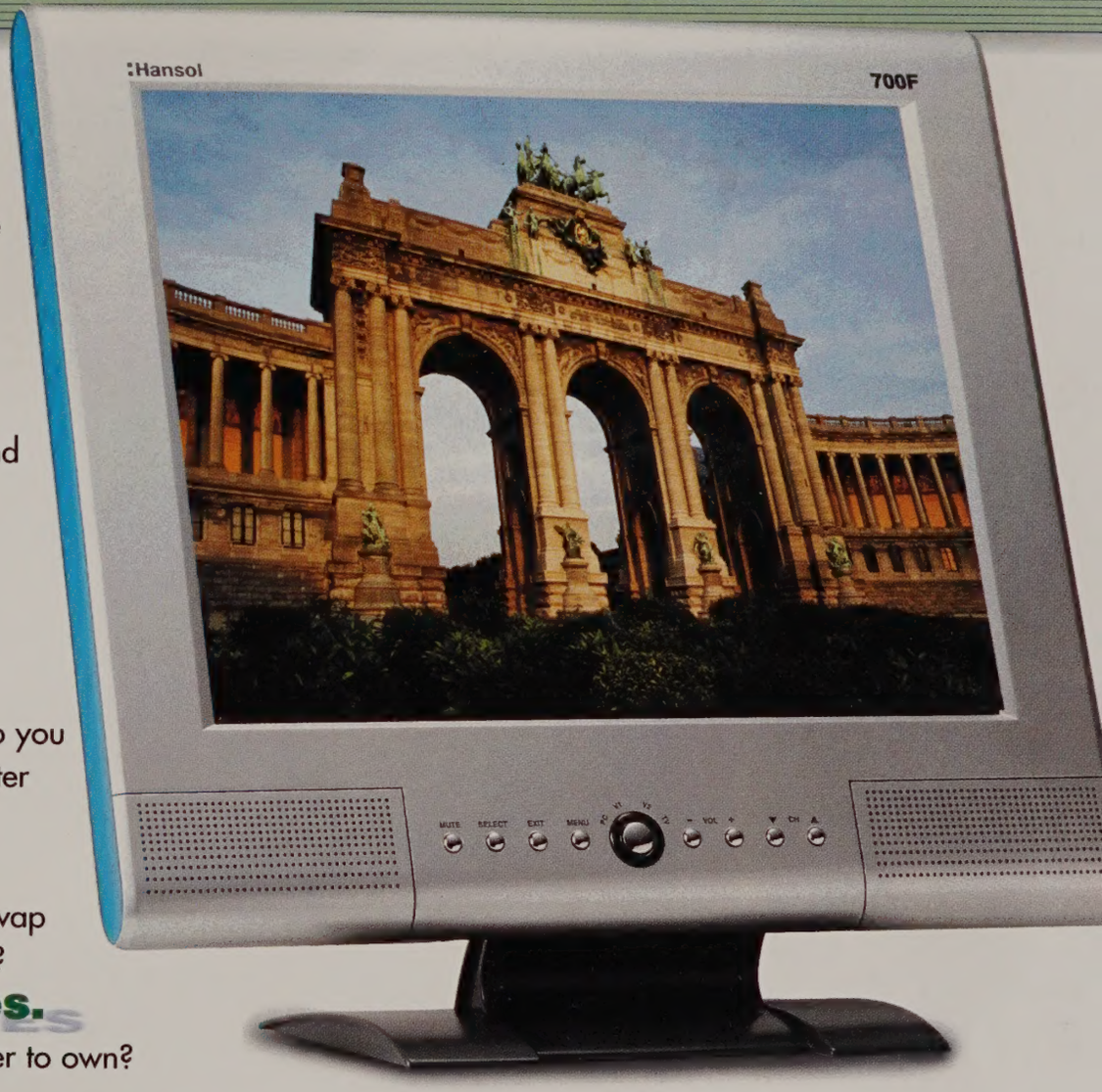

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